Creation Vs Evolution Material

Does the New Testament Support Genesis 1-11?

Over the past century, evolution has become more entrenched in our schools as supposedly a scientific fact. As a result, the first eleven chapters of Genesis have slowly become an embarrassment within many Christian churches and seminaries. Few people in these churches and seminaries have stopped to consider just how foundational these chapters are to the New Testament. The early chapters of Genesis were frequently referred to by every New Testament writer and Jesus Christ Himself. What happens to their credibility if these early chapters are incorrect? Listed below are sixty-eight direct references in the New Testament that refer back to these foundational chapters of Genesis. (Based in part on the original work of Dr. Henry M. Morris as contained in his book ***The Remarkable Birth of Planet Earth.***

There are many more indirect references. A student of scripture cannot fail to realize that the New Testament writers believed in the events described in the early chapters of Genesis.

Reference	**Topic**	**Genesis Reference**
*1. Matthew 19:4	Created male and female	1:27, 5:2
*2. Matthew 19:56	Cleave to his wife; become one flesh	2:24
*3. Matthew 23:35	Righteous Abel	4:4
*4. Matthew 24:3739	Noah and the Flood	6:1-22, 7:1-24, 8:1-22
*5. Mark 10:6	Created male and female	1:27, 5:2
*6. Mark 10:79	Cleave to his wife, become one flesh	2:24
*7. Mark 13:19	Creation which God created	1:1, 2:4
8. Luke 3:34-36	Genealogies: Abraham to Shem	11:1026
9. Luke 3:36-38	Genealogies: Noah to Adam to God	5:329
*10. Luke 11:51	Blood of Abel	4:811
*11. Luke 17:27	The flood came and destroyed them all	7:1023
12. John 1:13	In the beginning God	1:1
*13. John 8:44	Father of lies	3:45
14. Acts 14:15	Who made the heaven and the earth	2:1
15. Acts 17:24	God made all things	1:131
16. Romans 1:20	The creation of the world	1:131, 2:4
17. Romans 4:17	God can create out of nothing	1:131
18. Romans 5:12	Death entered the world by sin	2:1617, 3:19
19. Romans 5:14-19	Death reigned from Adam	2:17
20. Romans 8:20-22	Creation corrupted	3:1718
21. I Corinthians 6:16	Two will become one flesh	2:24

22. I Corinthians 11:3	Head of the woman	3:16
23. I Corinthians 11:7	In the image of God	1:27, 5:1
24. I Corinthians 11:8	Woman from man	2:2223
25. I Corinthians 11:9	Woman for the man	2:18
26. I Corinthians 15:21-22	By a man came death	2:1617, 3:19
27. I Corinthians 15:38-39	To each. . . seeds of its own (kind)	1:11, 1:21, 1:24
28. I Corinthians 15:45	Adam became a living being	2:7
29. I Corinthians 15:47	Man from the earth	3:23
30. II Corinthians 4:6	Light out of darkness	1:35
31. II Corinthians 11:3	Serpent deceived Eve	3:16, 3:13
32. Ephesians 3:9	Created all things	1:1-31, 2:1-3
33. Ephesians 5:3031	Cleave to his wife, become one flesh	2:24
34. Colossians 1:16	All things created by Him	1:1-31, 2:13
35. Colossians 3:10	Created in His image	1:27
36. I Timothy 2:1314	Adam created first	2:1823
37. I Timothy 2:14	Woman deceived	3:16, 3:13
38. I Timothy 4:4	Everything created by God is good	1:1031
39. Hebrews 1:10	In the beginning God made heavens and earth	1:1
40. Hebrews 2:78	All things in subjection under man	1:2630, 9:23
41. Hebrews 4:3	Works were finished	2:1
42. Hebrews 4:4	Rest on the seventh day	2:2-3
43. Hebrews 4:10	Rest from His works	2:2-3
44. Hebrews 11:3	Creation of the universe	1:1
45. Hebrews 11:4	Abel offered a better sacrifice	4:35
46. Hebrews 11:5	Enoch taken up	5:2124
47. Hebrews 11:7	Noah's household saved	7:1
48. Hebrews 12:24	Blood of Abel	4:10
49. James 3:9	Men in the likeness of God	1:27, 5:1
50. I Peter 3:20	Construction of the Ark, eight saved	6:1416, 7:13
51. II Peter 2:5	A flood upon the ungodly, eight saved	6:812, 7:124
52. II Peter 3:45	Earth formed out of water and by water	1:67
53. II Peter 3:6	The world destroyed by water	7:1724
54. I John 3:8	Devil sinned from the beginning	3:14
55. I John 3:12	Cain slew his brother	4:8, 4:25
56. Jude 11	The way of Cain	4:8, 4:16, 4:25
57. Jude 14	Enoch, the seventh generation from Adam	5:324
58. Revelation 2:7	Tree of life	2:9
59. Revelation 3:14	Beginning of the creation of God	1:131, 2:14
60. Revelation 4:11	Created all things	1:1-31, 2:1-3

61. Revelation 10:6	Who created heaven. . . and the earth	1:1, 2:1
62. Revelation 14:7	Who made the heaven and the earth	1:1, 2:1, 2:4
63. Revelation 20:2	The serpent of old, who is the devil	3:1, 3:14
64. Revelation 21:1	First heaven and first earth	2:1
65. Revelation 21:4	No more death, sorrow, crying or pain	3:1719
66. Revelation 22:2	Fruit of the tree of life	3:22
67. Revelation 22:3	No more curse	3:1419
68. Revelation 22:14	The tree of life	2:9

*The words of Jesus Christ during His earthly ministry.

Note:

a. Every New Testament writer refers to the early chapters of Genesis (***Genesis 1-11***).

b. Jesus Christ referred to each of the first seven chapters of Genesis.

c. All New Testament books except ***Galatians, Philippians, I*** and ***II Thessalonians, II Timothy, Titus, Philemon,*** and ***II*** and ***III John*** have references to ***Genesis 1-11.***

d. Every chapter of ***Genesis 1-11***, except chapter 8, is referred to somewhere in the New Testament.

e. Every New Testament writer apparently accepted these early chapters of ***Genesis*** as historically accurate.

Another interesting parallel between ***Genesis*** and the New Testament relates to the flood and water baptism. Ask yourself, "What was the **original** significance of water baptism?" Of course, John baptized as a symbol of repentance for the forgiveness of sins. But where did he get the idea? As you look at the following table, **consider whether water baptism should remind us of the flood** . Also carefully examine ***I Peter 3:20-21***.

Table 8: Comparison of the Flood with Water Baptism

The Flood	Water Baptism
A sin corrupted world was covered with water.	A person acknowledges his sinful nature is covered by water.
The Ark lifted the followers of God out of the water.	The person who desires to follow God's will is lifted out of the water.
The Ark saved a few people from a horrible destruction.	Jesus Christ saves the believer from a horrible destruction.
After the flood, a dove returned to Noah indicating that it was safe to go out into the world that had been destroyed.	After John baptized Jesus Christ, the spirit of God descended to Christ as a dove. Then Christ went into the wilderness where He was tempted.

34 THINGS THAT EVOLUTIONISTS NEED TO EXPLAIN LOGICALLY

Composed by Bro. Peter Schwartzkopff

1. The Monumental Coincidences with the Habitable Earth

- Why is Earth - Sun Distance so favourable to life?
- Why is the Earth's Atmosphere such a density that it protects life from meteorites?
- Why is the toxic Ozone Layer which blocks UV rays is at an altitude of 50km?
- The Magnetic Field & The Van Allen Belts protect us from cosmic rays[1]
- The Greenhouse Effect – which keeps the average atmospheric temperature at 15°C[2]. – neither too hot nor too cold

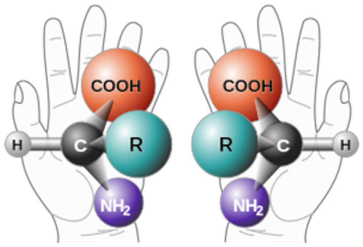
2. The impossibility of Miller's Experiment producing life

- It only produced a few simple amino acids which are nowhere near complex enough for what is needed for life
- The probability of forming randomly one simple protein is practically and for all intents and purposes zero.
- The conditions in Miller's Experiment would denature any proteins if they were to form
- Intelligence is implicit in Miller's Experiment.
- It ignores Redi's Experiment.

3. The atmosphere & protein conundrum

- A reducing atmosphere is needed to create proteins – the building blocks of life because proteins are destroyed by oxygen
- However, an oxidising atmosphere is needed to sustain current life forms
- None can explain how to transform a reducing atmosphere to an oxidising one.

4. The left handedness of amino acids and sugars in cells



- Under normal circumstances 50% of each optical isomer (left-handed and right-handed) is produced in reactions yet life forms only have one form.

---

[1] Planets which generate magnetic fields in their interiors, such as Earth, Mercury, Jupiter and Saturn, are surrounded by invisible magnetospheres - See more at: http://www.astrobio.net/also-in-news/a-magnetic-surprise-from-venus/#sthash.j73PVa1y.dpuf

[2] 30oC higher than without the effect

- All amino acids in proteins are 'left-handed', while all sugars in DNA and RNA, and in the metabolic pathways, are 'right-handed'.

5. Where did DNA code come from?

- It is after all a code!!!!
- Code is written by intelligence – surely?
- Human DNA contains about 25000-30000 genes

6. The mind-boggling complexity of cells

- Hepatocyte calculations
- There are ~ 10 000 different proteins in a hepatocyte
- There are ~1 million proteins per different type
- Total ~ 8 x 10^9 per cell (i.e. 8 billion per cell)

7. Which genes need to be read in the growth and development of a foetus?

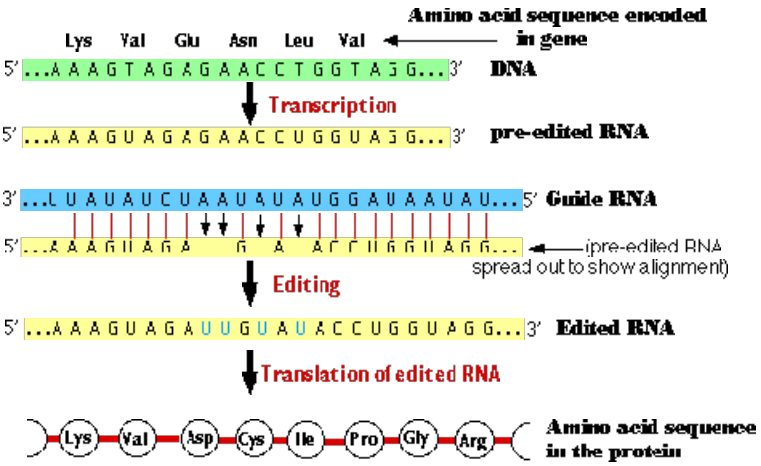
- How does the cell determine which genes are read and in what sequence?
- The intercellular and intracellular communication systems are mind boggling

8. **How did new biochemical pathways, which involve multiple enzymes working together in sequence, originate?**

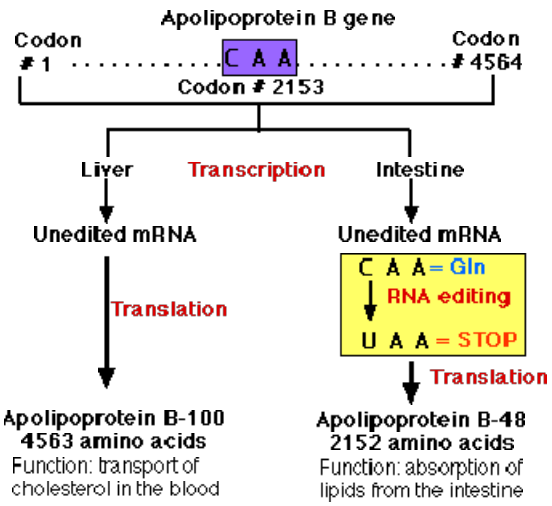
Every pathway and nano-machine requires multiple protein/enzyme components to work. How did lucky accidents create even one of the components, let alone 10 or 20 or 30 at the same time, often in a necessary programmed sequence. Evolutionary biochemist Franklin Harold wrote, "we must concede that there are presently no detailed Darwinian accounts of the evolution of any biochemical or cellular system, only a variety of wishful speculations."3

9. The editing of mRNA

- Allows epigenetic effects to influence the outcome. Why – it only creates more complexity?

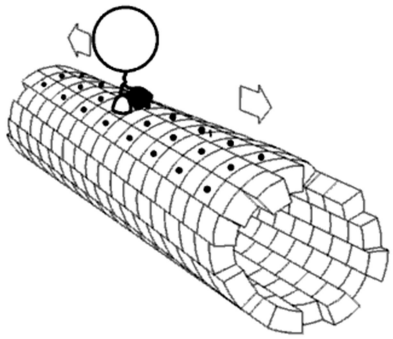


- Allows same gene sequence to produce two different outcomes eg apolipoproteins B-1—and B-48

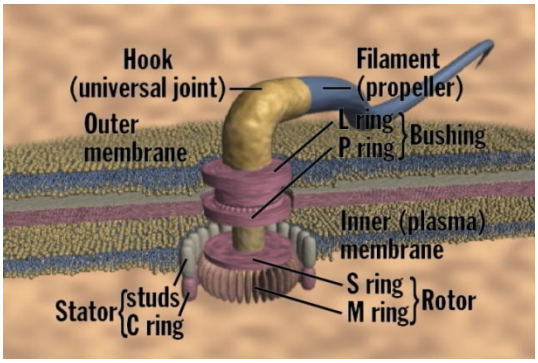


10. The amazing robotic machine-like workings of the cell

- **Kinesin** pulling vesicles along microtubules – how does the kinesin molecule know where it is going?
- **Ribosomes** reading mRNA and assembling peptides
- **Molecular chaperones** - proteins that assist the non-covalent folding or unfolding and the assembly or disassembly of other macromolecular structures – how could such a 'machine' come into existence by chance
- **ATP synthase** in mitochondria



11. The irreducible complexity of cells & cell organelles



For a working [bacterial] flagellum to be built by exaptation, the five following conditions would all have to be met:

Availability. Among the parts available for recruitment to form the flagellum, there would need to be ones capable of performing the highly specialized tasks of paddle, rotor, and motor, even though all of these items serve some other function or no function.

Synchronization. The availability of these parts would have to be synchronized so that at some point, either individually or in combination, they are all available at the same time.

Localization. The selected parts must all be made available at the same 'construction site,' perhaps not simultaneously but certainly at the time they are needed.

Coordination. The parts must be coordinated in just the right way: even if all of the parts of a flagellum are available at the right time, it is clear that the majority of ways of assembling them will be non-functional or irrelevant.

Interface compatibility. The parts must be mutually compatible, that is, 'well-matched' and capable of properly 'interacting': even if a paddle, rotor, and motor are put together in the right order, they also need to interface correctly.

12. Which came first – DNA or enzymes?

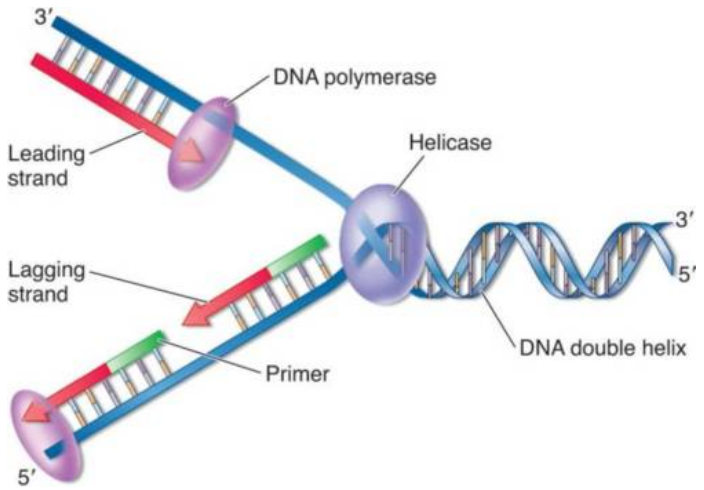
- Proteins (enzymes)are needed to form and copy DNA (eg DNA polymerase[3], RNA Polymerase, helicase[4])
- Need DNA to make proteins (Protein synthesis)
- This is a conundrum of the highest order!!!!

13. How do all the necessary chemicals "magically" collect at the right place?

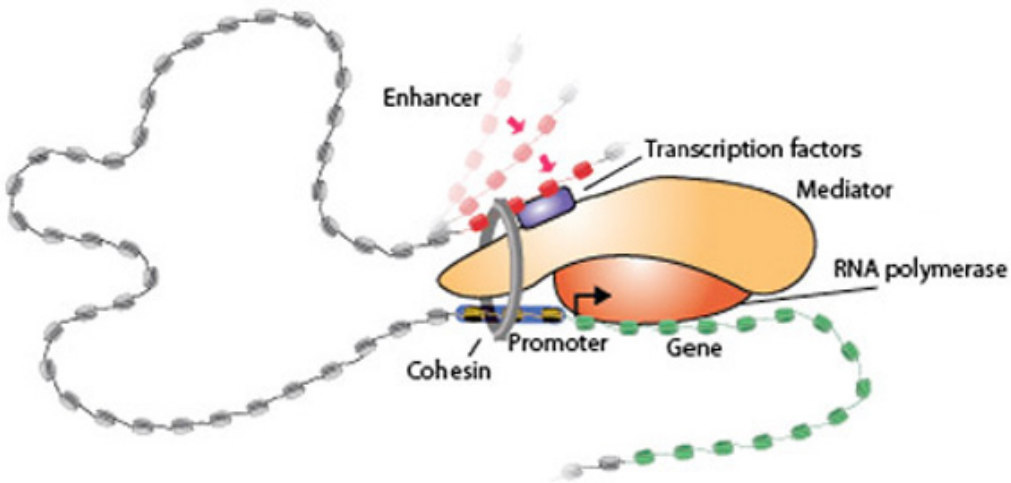
[3] The DNA polymerases are enzymes that create DNA molecules by assembling nucleotides, the building blocks of DNA. These enzymes are essential to DNA replication and usually work in pairs to create two identical DNA strands from one original DNA molecule

[4] Helicases are enzymes that bind and may even remodel nucleic acid or nucleic acid protein complexes. There are DNA and RNA helicases. DNA helicases are essential during DNA replication because they separate double-stranded DNA into single strands allowing each strand to be copied.

E.g. All the enzymes involved in the copying of DNA somehow all know where they should be?



E.g. how do transcription factors know where to go in nucleus?



14. The fragility of the protein molecule yet proteins survive

It denatures from 43°C and is affected by oxidisers and pH -both low and high

15. The complexity of inter and intra cellular communication

Intracellular communication works like a computer programme

There are many types of communicating molecules:

- Autocrine
- Intracrine
- Paracrine
- Endocrine

16. Why/how apoptosis and autophagy?

- The amazing monitoring of the cell cycle – cell check points

- The ability to decide whether too many mistakes are being made and so set the cell on a path to dismantling of the cell
- There are several different ways in which a cell can die. Two mechanisms that are particularly well-studied are neat and orderly, sort of the cellular equivalent of "death with dignity." The first, called apoptosis (the second "p" is silent!), involves the activation of a molecular pathway that results in the cell's DNA being chopped to pieces, after which the cell breaks up and is devoured by other cells.
- The second mechanism, autophagy, causes the cell to eat itself from the inside.

17. The repair mechanisms for DNA mutations

- How did these complex processes come about by random processes?
- a collection of processes by which a cell identifies and corrects damage to the DNA.
- Base excision repair (BER), which repairs damage to a single base caused by oxidation, alkylation, hydrolysis, or deamination. The damaged base is removed by a DNA glycosylase. The "missing tooth" is then recognized by an enzyme called AP endonuclease, which cuts the Phosphodiester bond. The missing part is then resynthesized by a DNA polymerase, and a DNA ligase performs the final nick-sealing step.
- Nucleotide excision repair (NER), which recognizes bulky, helix-distorting lesions such as pyrimidine dimers and 6,4 photoproducts. A specialized form of NER known as transcription-coupled repair deploys NER enzymes to genes that are being actively transcribed.
- Mismatch repair (MMR), which corrects errors of DNA replication and recombination that result in mispaired (but undamaged) nucleotides.

18. How does mitosis accidentally occur?

- How can you have meiosis & mitosis?
- What was the cell thinking?
- Why would it develop this function?
- What benefit would it afford to the individual cell?

19. The origin of the sexes

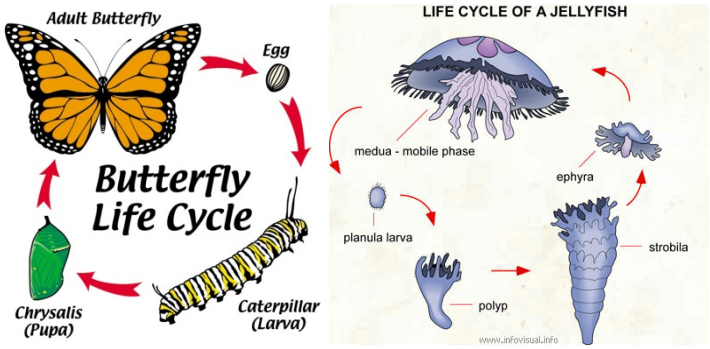
- Where did the sexes come from?
- Did they have to evolve separately?
- What was the mechanism for their creation?

20. The origin of vision

- When it is the brain that truly is the organ of vision (ie a creature needs a brain to see) and the brain’s complexity is beyond understanding.

- Different parts of the brain perform different functions on information coming from the eye.
- The brain then integrates[5] this information into a unified colour #D picture that is useful in real time.

21. The life cycle of animals



What does that radical transformation entail? How does a caterpillar rearrange itself into a butterfly? What happens inside a chrysalis or cocoon? But more importantly why does a caterpillar suddenly change into a butterfly at all? It cuts right across the idea of evolutionary development. It instead relies on pre-laid down plans based on genetic information.

First, the caterpillar digests itself, releasing enzymes to dissolve all its tissues. If you were to cut open a cocoon or chrysalis at just the right time, caterpillar soup would ooze out. But the contents of the pupa are not entirely an amorphous mess. Certain highly organized groups of cells known as imaginal discs survive the digestive process. Before hatching, when a caterpillar is still developing inside its egg, it grows an imaginal disc for each of the adult body parts it will need as a mature butterfly or moth—discs for its eyes, for its wings, its legs and so on. In some species, these imaginal discs remain dormant throughout the caterpillar's life; in other species, the discs begin to take the shape of adult body parts even before the caterpillar forms a chrysalis or cocoon. Some caterpillars walk around with tiny rudimentary wings tucked inside their bodies, though you would never know it by looking at them.
Once a caterpillar has disintegrated all of its tissues except for the imaginal discs, those discs use the protein-rich soup all around them to fuel the rapid cell division required to form the wings, antennae, legs, eyes, genitals and all the other features of an adult butterfly or moth. The imaginal disc for a fruit fly's wing, for example, might begin with only 50 cells and increase to more than 50,000 cells by the end of metamorphosis. Depending on the species, certain caterpillar muscles and sections of the nervous system are largely preserved in the adult butterfly. One study even suggests that moths remember what they learned in later stages of their lives as caterpillars.

22. The shortness of the mayfly's adult life

- How come some species only emerge all (male and female) together for a 24 hour period only - incongruous !

[5] to put together parts or elements and combine them into a whole

23. The lack of "evolutionary" change over "millions of years" in hundreds of animals. These organisms appear in fossil record but also exist right now?

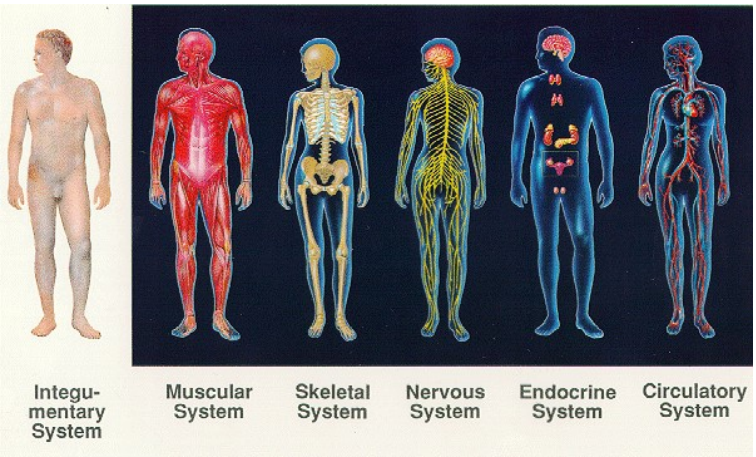
- Coelacanth
- Wollemi Pine
- Army Ants
- Cycads
- Turtles
- Flies
- Shrimps
- Dragonflies
- Horseshoe Crabs
- Starfish
- Salamanders
- Sharks
- Maple Leaves

24. Symbiosis that is vital to life

e.g. The Bumblebee Orchid (Ophrys bombyliflora) has flowers that look and smell so much like female Bumblebees that males flying nearby are irresistibly drawn in by this chemical signal, stimulating them sexually. The insect gets so excited that he starts to copulate with the flower. This is termed pseudocopulation. The firmness, the smoothness and the velvety hairs of the lip are a further incentive for the insect to enter the flower. The pollinia inadvertently stick to the head or the abdomen of the male bumblebee. On visiting another orchid of the same species, the bumblebee pollinates its sticky stigma with the pollinia

25. The Interdependence of Organ Systems in Humans –working as one

- They need to evolve together and virtually instantaneously otherwise they become of no use to each other.



26. Consciousness in Humans and animals.

How did evolution generate that?

27. How did blind chemistry create mind/ intelligence, meaning, altruism and morality?

If everything evolved, and we invented God, as per evolutionary teaching, what purpose or meaning is there to human life? Should students be learning nihilism (life is meaningless) in science classes?

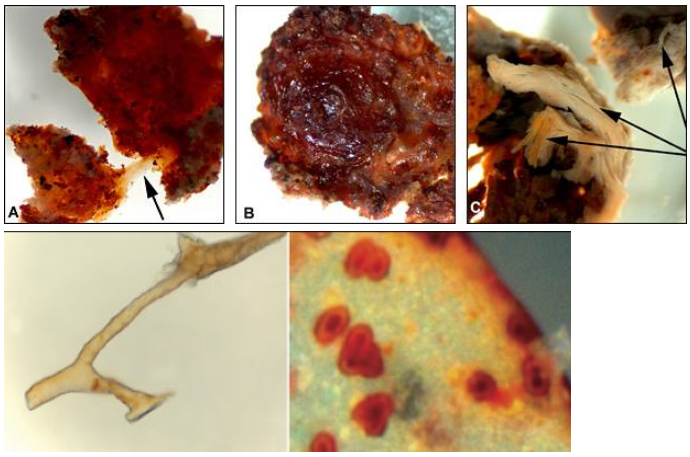
It fits better with evolution.

28. If a change is made to the physical appearance of an organism, how does this change end up in the DNA?

Isn't this a version of Lamarck's theory of evolution (e.g. Giraffe)?

29. Why are some dinosaur fossils supposedly from the Cretaceous period being discovered with tissue (including blood) still surviving?

65-million" Year Old *T. rex* Soft Tissue: The *T. rex* photos below are actually old news, whereas all the latest published journal papers, through 2013, are listed chronologically, below. As for these photos though, North Carolina State University discovered this original biological tissue from a supposedly 65-million year old *Tyrannosaurus Rex* thighbone, with transparent and pliable blood vessels containing red blood cells. See these and other *T. rex* photos at Smithsonian Magazine and MS-NBC, and see an early Nat'l Geographic report. Famed paleontologist Jack Horner of Montana State University worked the excavation site. In a 2011 development, ten leading universities and institutes including Harvard, the University of Manchester, and the University of Pennsylvania published in PLoS One, a peer-reviewed journal, that they had verified that presumed dinosaur material is indeed original biological tissue from a dinosaur! Creationists refer to dinosaurs as *missionary lizards* for many reasons including:


A
B
C

30. Why do complex creatures such as trilobites exist in the fossil record in the so-called Cambrian era from 500 Ma –ie at the very beginning?

31. Why are the greater majority of fossils found in sedimentary rock with evidence that they were buried rapidly?

This photo shows a fossil fish in the midst of devouring another fish.

32. Why do evolutionists reject the law of Biogenesis that says "life comes from life"

Law of Biogenesis

- **Life comes only from preexisting life**
  - **Experiments done over two centuries prove this**
  - **Louis Pasteur, Redi, Spellanzani**
- **Spontaneous origin of life impossible:**
  - **Miller's experiment made wrong assumptions about early earth's environment**
  - **Organic molecules oxidized by oxygen**
  - **Probability of protein formation by chance is less than 1 in 10**130, i.e. ZERO/ZIP/NONE**
  - **Simple cell requires 100's of protein molecules in a specific order**

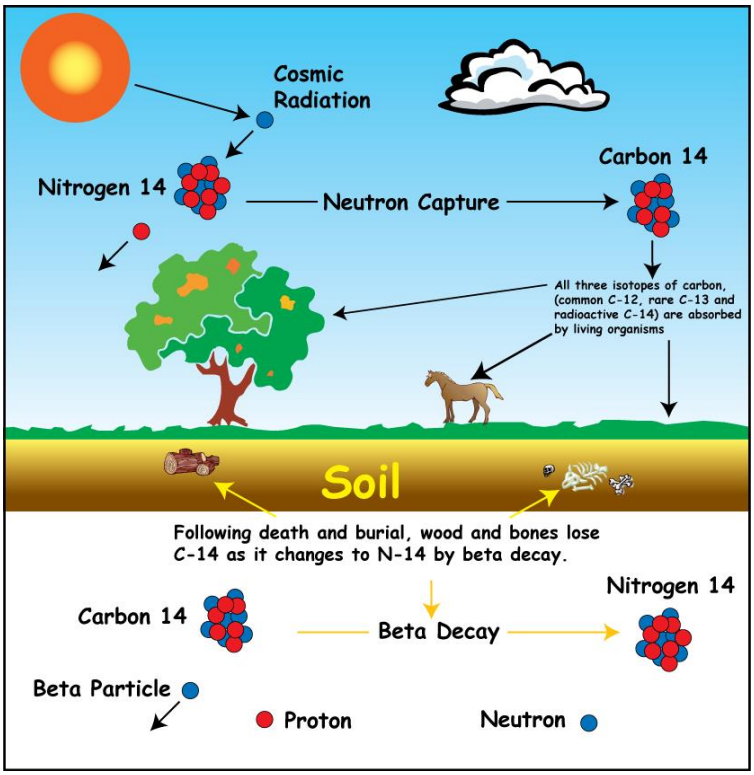
33. Why is natural selection, a principle recognized by creationists, taught as 'evolution', as if it explains the origin of the diversity of life?

By definition it is a selective process (selecting from already existing information), so is not a creative process. It might explain the survival of the fittest (why certain genes benefit creatures more in certain environments), but not the arrival of the fittest (where the genes and creatures came from in the first place). The death of individuals not adapted to an environment and the survival of those that are suited does not explain the origin of the traits that make an organism adapted to an environment. E.g., how do minor back-and-forth variations in finch beaks explain the origin of beaks or finches? How does natural selection explain "goo-to-you" evolution?

34. How come coal seams in Australia and eastern USA are 15m thick? This is not consistent with the swamp theory of creation but with rapid and massive burial by flood.

A coal seam in the Powder River Basin, WY
http://enterprise.cc.uakron.edu/geology/natscigeo/Lectures/smrocks/sedmeta.htm#sedimentar

34. How come Radiocarbon Dating is used as a dating technique even though its proponent Willard. F. Libby, having based it upon the notion that the rate of C^{14} creation equalled the rate of C-14 decay, showed in his own calculations that was not the case? Instead he simply put the 25% discrepancy down to error!
Also how can they claim carbon is in equilibrium for Libby's theory but not in equilibrium for the benefit of Global Warming Theory?



65 Facts Every Student Should Know About Evolution

1. If not creation, then what?

Scientists call it the first law of thermodynamics. Isaac Asimov says "this law is considered the most powerful and most fundamental generalization about the universe that scientists have ever been able to make."1 What is this law that lies at the base of all modern science? It is the fact that while you can convert matter to energy (like heat that results from a burning log), you can not create energy or matter out of nothing. So, since we know that our universe is made up of matter and energy, we have to face the reality that it had to come from somewhere. Despite the incredible advances of modern science, the fact remains that not one of our scientific theories can even begin to explain where the energy and matter came from in the first place. Creation is the only plausible theory that anyone has been able to offer.

1 Asimov, Isaac, "In the Game of Energy and Thermodynamics You Can't Even Break Even," Journal of the Smithsonian Institute (June, 1970), p. 6.

2. There had to be a beginning.

For centuries scientists argued that the universe was infinite and eternal. If so, many claimed, there was no beginning and hence nothing for a creator to do. But, we now know that the amount of usable energy in the universe is decreasing. And, scientists agree, if the universe is running down, it cannot be eternal, or infinite. It will have an end just as it had to have had a beginning. Scientists know this principle as the second law of thermodynamics. It is fascinating to know that science's two most foundational discoveries argue for creation, not against it!

"...If your theory is found to be against the second law of thermodynamics, I can give you no hope; there is nothing for it but to collapse in deepest humiliation."
Sir Arthur Eddington

3. A beginning requires a beginner.

It wasn't until the early part of the twentieth century that Newton's model of an infinite and eternal universe was finally scrapped. The final clincher was Albert Einstein's discovery of the general theory of relativity. Einstein's mathematical theory seemed to prove that everything in the universe is moving away from everything else, suggesting that someone or something must have set it in motion in the first place. Although Einstein didn't like it (he was an atheist), his own discovery forced him to admit that the universe had to have a beginning. And, if there is a beginning, must there not be a beginner?

4. Einstein, Hubble and the expanding universe.

When Einstein's general theory of relativity was published in 1917, it was only a concept and no one knew how to test it. But, in that same year, the world's largest telescope was finally ready to be used for observations. Twelve years later in 1929, astronomer Edwin Hubble (after whom today's Hubble Telescope is named) was able to prove that Einstein's theory was indeed correct. What the telescope showed was that all the other galaxies in the universe were indeed moving away from us. It was from these observations that the Big Bang theory was eventually born. Scientists knew that, according to the law of inertia, these galaxies had to have been set in this kind of motion by some external force. And since the galaxies were moving in a manner similar to the results of a bomb explosion, the theory was born that the universe came into being as a result of a Big Bang. One thing was for sure; the universe had a beginning.

5. What came before the Big Bang?

The idea of a big bang does make sense. Many different observational techniques confirm that every galaxy that we can see, is indeed moving away from every other. If all the galaxies are now moving away from each other, there must have been a time in which they were all closer together. In fact, according to Einstein's mathematical calculations and new scientific discoveries, everything that makes up the universe was at one time so compacted that it did not take up any space whatsoever! While this may be difficult to even begin to imagine, the theory suggests that it eventually exploded, shooting the universe out just as a bomb would. According to this widely accepted theory, the expansion of the universe that we are witnessing today is simply the result of that explosion.

However, Stephen Hawking, one of the world's leading authorities on the cosmos, admits that this theory does not even try to answer the question of where we, and the rest of the universe came from in the first place.

6. Isn't this theory backwards?

The Big Bang theory has become one of the most popular theories for the formation of the universe. There are flaws with the theory, however. For one, destruction and chaos are the results of an explosion, not systematic order. A building contractor, for example, would not put all of his materials in a big pile along with a few sticks of dynamite, ignite the dynamite, and then expect the result to be a perfectly constructed office building. But this is what the Big Bang theory is essentially suggesting, that the ordered life we see today was the result of an explosion.

7. Who laid down the law?

Some have argued that the order of the universe was created by the laws of gravity. Essentially, this proposal suggests that the force of gravity pulls and holds together, in a delicate balance, all of the stars, planets, asteroids, galaxies etc. So what these scientists are claiming then, is that what started out as chaos was brought into line by the law of gravity. The creationist would have to ask where this law of gravity, and other natural laws, came from in the first place. Are these scientists suggesting that natural laws have some kind of mystical powers in themselves? And why would there be orderly laws in a universe which just moments before randomly appeared out of chaos?

8. Scientists prove beginning!?

In 1992 there was great excitement over the findings of a team of astrophysicists who had been researching the latest discoveries of COBE (Cosmic Background Explorer), a sophisticated satellite in orbit around the Earth. Scientists had long claimed that if the Big Bang theory was correct, then there would have to be "ripples" or temperature variations in the background radiation of the universe. Astrophysicists claimed that COBE found these long-lost ripples. Now the Big Bang theory is still a theory of course, but the findings are of tremendous importance to Biblical creationists since they confirm once again that the universe had a beginning. Indeed, even many non-theistic astronomers had to draw some theistic conclusions about the discoveries. Stephen Hawking, a mathematics professor at Cambridge University and one of the most brilliant men in the world, claimed, "It is the discovery of the century, if not all time."1 Michael Turner of the Fermi National Accelerator Laboratory near Chicago noted, "The significance of this cannot be overstated. They

have found the Holy Grail of cosmology."2 George Smoot, project leader for COBE noted, "What we have found is evidence for the birth of the universe."3 The main point is, if the universe had a beginning, it must have a beginner.

1 Nigel Hawkes, "Hunt On For Dark Secret of Universe," London Times, April 25, 1992, p. 1.
2 International Herald Tribune, "US Scientists Find a 'Holy Grail': Ripples at the Edge of the Universe," April 24, 1992, p. l.
3 Ibid.

"For the scientist who has lived by his faith in the power of reason, the story of the Big Bang ends like a bad dream. For the past three hundred years, scientists have scaled the mountain of ignorance and as they pull themselves over the final rock, they are greeted by a band of theologians who have been sitting there for centuries."
Robert Jastrow, Columbia University Professor and Founder of the Goddard Space Center.

9. Why does the universe have some warmer spots?

Through the laws of physics we know that heat always flows from hot bodies to cold bodies until they reach a state of balance. If the universe had always been here, then the heat in the universe would be evenly dispersed throughout. But it is not. So, the universe has been here for a period of time less than the redistribution of heat would have taken**.**

10. Scientists at wits end.

Scientists have no idea how the universe began. Indeed, in 1995, the world of cosmology was thrown into chaos when Tod Lauer and Marc Postman of the Space Telescope Science Institute in Baltimore produced research that didn't fit with any of the common theories on how the universe functions. An article in Time magazine stated that the two young astronomers spent a year trying to debunk their own findings because they knew they would create such a brouhaha. From their research they concluded that a few thousand galaxies, including our own, are not expanding in the same orderly fashion as the rest of the universe. Time observed, "Astronomers have come up with one theory-busting discovery after another...Nobody can say what the turmoil means -- whether the intellectual edifice of modern cosmology is tottering on the edge of collapse or merely feeling growing pains as it works out a few kinks. "If you ask me,' says astrophysicist Michael Turner of the Fermi National Accelerator Laboratory near Chicago, 'either we're close to a breakthrough, or we're at our wits' end.'"1 The Time article also went on to point out other "bewildering discoveries...in a barrage of bafflements."

1 Time, cover story, by Michael D. Lemonick and J. Madeleine Nash, March 6, 1995, p. 37.

11. An act of faith.

According to the so-called scientific view, the Universe was created by an incredible series of the most unlikely events that can possibly be imagined. There is no data to support this view, other than a desire to avoid the obvious conclusion, that there must have been a 'creator'. We know from the second law of thermodynamics that any system, left on its own, will break down and decay, not build itself up and become greater and more complex. However, if this is true, then how did the universe manage to do exactly the opposite? This is another question that science has no answer

for. In other words, the whole idea of a Big Bang and a naturally-created universe requires that very thing that scientists accuse Christians of ...faith.

12. Time is really the enemy of evolution!

One of the biggest points of contention between creationists and evolutionists is the issue of time. It is only with time that evolution supposedly becomes respectable. Something that is totally impossible is suddenly considered quite reasonable when you add a clause suggesting that it happened over billions of years. As Evolutionist George Wald noted, "Time is in fact the hero of the plot...given so much time the 'impossible' becomes possible, the possible probable and the probable virtually certain. One has only to wait: time itself performs miracles."1 However, the laws of science suggest a problem with this idea. Those laws tell us very clearly that with time things degrade. They do not become better. A tree dies and decomposes into the soil, not the other way around. Scientifically speaking then, time is the enemy of evolution, not its friend.

1 Wald, George, "The Origin of Life", Physics and Chemistry of life, 19S5, v

13. How old is the universe?

How do scientists actually go about calculating the age of the universe? For this, two pieces of information are needed: how far away galaxies are already and how fast they're moving apart. The ratio between these figures will supposedly tell us how long the cosmos has been expanding. This is known as the "Hubble Constant". But can astronomers actually come up with an accurate estimate of the age of our universe?

According to David Branch, an astrophysicist at the University of Oklahoma, there are two big problems with this method: "What's the right distance, and what's the right speed?"1 Time magazine noted that "Since accurate distances can be measured only nearby, while useful galaxies are found only deep in space, astronomers do the best they can to bridge the gap. They use the close galaxies to estimate distances to the faraway ones. But the method is inexact, which is why they haven't been able to agree on what the age actually is."2 For instance, using data collected by the Hubble Space Telescope, a research team headed by Wendy Freedman at The Carnegie Observatories suggested that the universe was 8 to 12 billion years old. On the other hand, data collected from the Ultraviolet Imaging Telescope, which was carried into orbit with the endeavor space shuttle, suggested the universe is 14 billion years old. Astronomer Edwin Hubble had calculated it to be 15 to 20 billion years old. Depending on who you ask, astronomers will tell you that the universe is anywhere from 8 to 20 billion years old**.**

1 Time, March 6, 1995 op. cit., p. 40.
2 Ibid.

14. Rocks from space.

Most scientists today agree that the best estimate of the age of the Earth is somewhere around 4.6 billion years. How did they manage to come up with this figure? Well, they used a technique Called radioisotope dating, which is based on precise measurements of the ratio of the various radioactive isotopes found in a rock. We'll examine radioisotope dating more in the next several points to make it clearer, but first let's look at the rock that scientists examined and tested in order to come up

with their estimate. The rock they chose was a meteorite. Meteorites of course, are thought to be pieces of another planet that has broken up some time in the past. The assumption that scientists are making of course, is that these meteorites are the same age as the Earth! So, even if these rocks are found to be in the vicinity of 4.6 billion years old, does it really tell us anything about the age of the Earth? After all, these rocks aren't even from here.

15. Fred Flinstone was safe.

We've all seen falling stars. These are meteors that are steadily falling toward the Earth and burning up in our atmosphere. Those that don't burn up in this way, crash to Earth as meteorites. Curiously, we only tend such rocks in the very top levels of the Earth's surface. If the Earth's sediments were deposited over hundreds of millions of years, as evolutionists believe, we should find meteorites throughout the various levels of sediment on the Earth's surface. But, we don't.

16. Unreliable evidence?

Sometimes radioisotope dating produces different results in repeated experiments on the same sample. This was the case for the Allende meteorite. For the most part, when there is a case of conflicting age estimates, it is determined that the rock sample must have been contaminated in some way, and the results from the tests are simply thrown out. Of course, paleontologists do their best to pre-screen samples for contamination. But by throwing out samples after this pre-screening, they are admitting that it is possible for contamination to have occurred without being visibly detected. But how do we know that the results which are kept are indeed accurate? And, perhaps more importantly, how do we know they weren't kept simply because they lined up with what the paleontologist thought they should be?

17. Plus or minus a few billion years.

Tests were conducted on rocks formed from the lava flow of the Hualalai Volcano in Hawaii that erupted between 1800 and 1801. A variety of radioisotope dating methods were used with each test producing different ages for the same samples. The age estimates ranged from 140 million to 2.96 billion years. The same was found for Salt Lake Crater on Oahu. One test result dated a rock at 400,000 years. Others produced results ranging from 2.6 million to 3.3 billion. So radioisotope dating has been found to give ages which are not only incorrect, but which don't even agree with each other...in fact, they're not even close!

18. This dating method is all wet!

Studies have also been conducted on rocks formed from lava flows under the ocean to see if water pressure made any difference in dating results. Samples from the Mt. Kilauea lava flow were taken from a depth of 4,680 meters. The eruption occurred about 200 years ago. The test results, using the radioisotope method of potassium to argon, dated the rock at 21, plus or minus 8, million years. Samples taken from 3,420 meters dated it at 12, plus or minus 2, million years.
And those taken from a depth of 1,400 meters were dated at zero. All of the samples were from the same lava flow.

19. Proof inconclusive.

You may be thinking that although there are some problems with this dating method, it still seems to suggest an Earth that is very old, not young as viewed by literal Biblical creationists. But the fact of the matter is, of all the dating methods available, only a few give ages of millions or billions of years, namely those using radioisotope techniques.

20. Houston, we have a "tiny mystery".

Another evidence for the Young-Earth hypothesis is found in the mystery of polonium-218. You see, some elements, like uranium-238, are known as "parent" materials. The elements that parent materials break down into through decay are known as "daughter" materials and the age of a rock is determined by the markings left behind by these daughter materials. Polonium is one of these daughter materials. The markings left behind in a rock from each element as they break down are known as pleochroic halos. Each element produces its own unique halo -- -leaving its "signature" in the rock. Now, because Polonium is a daughter, there must be a source, or parent. For example, when uranium or thorium decay, one of the elements they break down into along the way is polonium. So a polonium pleochroic halo would appear as a circle where the polonium was, even though the polonium itself is now gone. If there is a pleochroic halo for polonium in a rock, there should also be a pleochroic halo for its source, or parent. However, polonium-218 has been found in granite samples without any evidence of a polonium parent.

Polonium-218 has a half-life of 3.05 minutes, but for simplicity, let's call it 3 minutes even. So if you have a kilo of Polonium-218, after three minutes have passed you will have half a kilo, in an another three minutes you will have a quarter of a kilo, and so on. It continues like this for about 10 half-lives, or thirty minutes. Let's say thirty half-lives have gone by, or about one and one half hours. For the polonium-218 pleochroic halo to have been set in the granite, which is a metamorphic rock that was once molten, without any trace of a parent, seems to suggest that it was the original element in those base rocks. And for the polonium-218 halo to have been left behind in the granite, means the granite would have to have cooled down in less than ninety minutes. The rock, while still in a molten state, would have destroyed any traces of the polonium-218 halo. So it appears the Earth could have been created solid, with the element of polonium-218 in it, in an extremely short period of time. While this theory is not without its critics, evolutionists have come to admit it is a "tiny mystery".

21. Where's the stuff?

Not only are there no bones to demonstrate the existence of the vast number of people that evolution requires (see "No Bones About It"), but their "stuff" is missing too. Where are their tools, cooking implements, homes, weapons etc? A population of this size would certainly have left an almost unbelievable number of artifacts behind when they died.

22. The seeds of intelligence.

It is hard to imagine people, just as intelligent as we are today, living for tens, or even hundreds of thousands of years, without ever discovering that the plants they were eating grew from seeds. And yet, the archaeological record clearly shows that man has been planting his own food for less than

10,000 years! Clearly this suggests that man hasn't been around for as long as evolutionists believe (and require).

23. Fossils support young earth.

The very fact that fossils exist at all seems to lend support to the idea of a young Earth. This is because, when an animal dies in the wild, its body is devoured by scavengers and disappears within days or weeks. It becomes a fossil only in those cases where it is covered over by sediment very, very quickly. This suggests than any rock strata that contain fossils, must have been laid down very quickly.

24. Venus de Mile High.

Venus is much closer to the sun than the Earth is and so the surface temperature on that planet hovers somewhere close to 1000º F. Had the planets existed for billions of years, then Venus' crust would have heated into a soft 'tar'. (Remember even hard elements like lead and zinc melt well below 1000 degrees). Yet, when we look at Venus today we see many very tall mountains. In fact, one such mountain, called Maat Mons is even taller than our own Mount Everest! If Venus had been there for billions of years, then the crust of the planet would simply be too soft to support such mountains and they would long ago have simply "oozed" into a big puddle.

25. Star light, star bright.

There are stars within our galaxy that are burning up much faster than our own sun. These stars are called "0" stars, and they are using up their fuel hundreds of times faster than the sun. The implication of this finding is that these stars must be rather young on an evolutionary scale -- -- otherwise they would have burned themselves out by now. Or, if they were once large enough to support such a rate of disintegration, we should then be seeing the resulting characteristics like high rotation speeds and huge magnetic fields. But such telltale signs do not exist.

26. Evolution finds magnetic field 'unattractive'.

The Earth's magnetic field also provides support for the idea of a young Earth. A strong magnetic field is crucial for life as we know it. It forms a protective covering around the Earth, blocking it from harmful cosmic radiation that continuously bombards the Earth. Observations made of the Earth's magnetic field over the last century and a half have shown that it is measurably decreasing in intensity. Since 1829 it has been measured that the strength of the magnetic field has decreased by about 7%. It has been calculated that the half-life of the magnetic field is about 1,400 years, meaning it decays to half its strength every fourteen hundred years. If it gets too weak life will not be possible. If the Earth was as old as evolutionists claim, the magnetic field would be non-existent by now.

27. A 20,000 year limit on life.

Let's look at the Earth's magnetic field backward in time. We know that according to half-life calculations, the magnetic field must have been twice as strong as it is now about 1,400 years ago.

If we went back in time then, say 100,000 years, that field would have been unbelievably strong, and life would simply not have been possible. In fact, it has been calculated by Dr. Thomas Barnes, former Dean of the Institute for Creation Research and Graduate School, and Emeritus Profess of Physics at the University of Texas in El Paso, that at any time beyond 20,000 years ago life, as we know it, would have been impossible on Earth.

28. An Airtight Argument.

Another young Earth argument centers on the presence of helium in the Earth's atmosphere. Helium is an extremely light gas. In fact, only hydrogen is lighter. By comparing the percentage of helium in the atmosphere to the total volume of the atmosphere, scientists are able to calculate the total number of helium atoms that must he present there. Since helium is produced below the Earth's surface, and escapes from there into the atmosphere -- scientists should be able to use the rate of that escape to calculate the age of the atmosphere itself. Dr. Larry Vardiman, Chairman of the Physics Department at the Institute for Creation Research has done extensive work on this and has produced an "airtight" argument.1 He calculated that the amount of helium in the atmosphere would have accumulated in no more than two million years. Now, while young-Earth creationists may not like this old date, it is still younger than the widely accepted age of the universe and the Earth in the scientific community. We should also note that these calculations were based on the assumption that the rate of accumulation of helium in the atmosphere has never changed. And it also assumes that when the Earth was formed there were no helium atoms present in the atmosphere to begin with. But if the Earth were designed to sustain life by a Creator, it is likely He would have had helium present in the atmosphere right from the start. This would obviously bring the time needed for the present accumulation down.

1 Vardiman, Larry, The Age of the Earth 's Atmosphere, Institute for Creation Research, 1990.

29. Another Helium Mystery.

The release of helium into the atmosphere has been measured at thirteen million helium atoms per square inch per second. There is still a vast amount of helium below the Earth's crust. Because helium is so lightweight there is no rock that is able to block its escape into the atmosphere. Now, radioactive decay in rocks does replenish some of the helium below the surface, but not enough to account for the amount there. If the process of helium escaping into the atmosphere had been going on for billions of years, there should be a lot more helium in the atmosphere than there is and a lot less below the Earth's surface. So not only does the small amount of helium in the atmosphere support a young-Earth view, so does the vast amount of helium still sitting below the Earth's crust.

30. Take Evolution with A Grain of Salt.

Evolutionists believe that life began in a salty ocean around 3 to 4 billion years ago. Supporters of the young-Earth view, however, point out the fact that if the Earth is as old as evolutionists say it is, then the oceans should be a lot saltier than they are today. Studies have been conducted by Dr. Steve Austin and Russell Humphreys1 on the rate at which sodium is deposited into and taken out of the oceans. Austin and Humphreys determined that the Earth could not be older than 62 million years, much younger than evolutionists claim. Now, while young-Earth creationists may not like this

age, it must be remembered that Austin and Humphreys used the most extreme conditions for input and the least extreme conditions for output to be more than fair to the evolutionist view point. Regardless, it was determined that the amount of salt going into the oceans is **greater than the amount going out. So, even if the** oceans came into existence with no salt in them, they should now be much saltier than they actually are.

1 Austin, Steven A. and Humphreys, Russell D.; "The Sea's Missing Salt: A Dilemma for Evolutionists," Proceedings of the Second International Conference on Creationism, Vol. 2, 1991; pp. 17-33.

31. Our Shrinking Sun.

Over the past 150 years, astronomers have made careful, regular measurements of the sun's diameter and have shown that our sun is shrinking at a rate of about 5 feet per hour. Extending the implications of these observations we can only conclude that had the sun existed several million years ago, it would have been so much bigger than it is today that its heat would have made life on Earth impossible. This flies in the face of evolutionary theory which suggests that a million years ago all the life we see today was already here. In fact, a million years is not that long ago by evolutionary standards, with the process believed to have begun hundreds of millions or even billions of years ago!

32. Enjoy the View, while you can!

The rings that wrap around Saturn are being rapidly bombarded by meteoroids. Some calculations estimate that such pulverization would destroy the rings completely in about 10,000 years. Since the rings are still there, the implication is that the rings around Saturn are quite a bit younger than evolutionists believe.

33. Houston, How far did you say it was to the Moon?

The rotation of the Earth is slowing down. This is caused by the 'friction' of the tides and it has been observed since the 1700's. We know from physics that this means that the Moon is slowly moving away from us. But, even if the Moon began orbiting right at the Earth's surface, it would still be much further away from us than it is if this process indeed started some 4.6 billion years ago.

34. Why Don't You Just Cool Down?

Jupiter, Saturn, and Neptune each give off twice as much heat as the sun provides. Since it is not believed that these planets build up heat through nuclear fusion, radioactive decay or gravitational contraction, the only other conceivable explanation is that these planets have not existed long enough to cool off.

35. Finding the Dirt on Evolutionary Theory.

Every time it rains, or the winds pick up, more of the continents are eroded away, and the soil is washed out to sea. In fact, studies have shown that close to 25 billion tons of sediment are removed from dry land and deposited in the ocean every year. At that rate, it would take less than 20 million years to completely erode the continents so that no dry land remained above sea level. If

we accept evolution as the explanation for life on Earth, then certainly we have to wonder why there is still dry land if the evolutionary process has been going on, on dry land, for hundreds of millions of years. At the same time, after hundreds of millions of years one would expect to find several miles of sediment on the ocean floors around the world. In reality, we see only hundreds of feet of sediment, again suggesting a much younger world than evolutionists would have us believe.

36. That Sinking Feeling.

When men were preparing to land on the Moon for the first time, there was concern about the dust that they would find there. NASA initiated project "Fire In The Hole" which had to deal with the variables involved related to the consistancy of the "moon dust". If the dust had the consistancy of gravel, there would be no problem. However, if the dust was very fine and, based on the universal assumption that the earth and moon came into existance at the same time, and the earth was billions of years old, experts feared that the astronauts might simply sink into as much as a mile of dust on the surface of the Moon! This of course, did not happen and scientists were forced to face the fact that the Moon could only be 10,000 to 20,000 years old when they found only a very thin layer of dust.

37. Would you believe Mount Rushmore was an Accident?

Imagine walking through the forest and coming across a tree with the words "Fred loves Wilma" carved into the trunk. Would you assume that those words had formed there by accident? Of course not. What about Mount Rushmore? Do you think anyone who sees it for the first time thinks that those faces simply appeared through erosion and other natural processes? You see, one thing we seem to have a pretty good sense about in every day life is determining what was man-made and what was a natural occurrence. In other words, our experience tells us quite readily what nature is capable of producing and what requires the intervention of an intelligent designer. At the same time however, we see evolutionists looking at some of the most astonishing designs imaginable, and suggesting that they are all just happy accidents.

38. Careful Design or Wonderful Accident?

Perhaps the best, and most striking evidence for the existence of a designer is the complexity of the design itself. Take for example the co-dependent relationship between the Pronuba moth and the Yucca plant, both of which naturally reside in the desert. The Yucca plant's very existence is dependent upon the Pronuba moth, whose eggs hatch in the desert sand at the base of the plant. Interestingly, this only happens on certain nights of the year, when the flowers of the Yucca plant are in bloom. You see, the moth, which is also dependent on the Yucca plant for its very life, takes pollen from one of the plant's flowers, and then flies to a different Yucca plant to lay its eggs. When it arrives at the other plant, the moth first pushes the pollen that it has collected from the first plant, into a flower on the second plant. That plant will then grow and prosper, fertilizing the moth eggs in the sand at its base. Her task complete, the Pronuba moth dies that same night. When the eggs hatch, the caterpillars will build cocoons at the base of the plant, and wait their turn to repeat this incredible cycle of survival. Equally amazing is the fact that there are several varieties of Yucca plant, and each one is pollinated by its own species of moth. How could all these varieties of the moth and Yucca plant have randomly come into coordinated existence, and then randomly evolved in perfect coordination just to give each other life?

39. Evidence of Design.

Obviously one of the most important elements in the discussion of a Creator, is the beginning of life itself. So, let's now step back in time to the very first appearance of primitive life in the universe. Not surprisingly, the creation of life was a complex process, requiring countless combinations of the elements of the universe to come together in a very precise way. For example, atoms of varying degrees of size must form. But before this can happen, there needs to be a precise balance of various other constants in the physical world, such as gravity, nuclear forces, the proper expansion rate of the universe, and the proper ratio of electrons and protons, to name just a few. In many of the myriad of variables in this complex equation, a change as small as one tenth of one percent could make life impossible. Such precision seems to suggest that there was great care taken in making the universe a place capable of supporting life. Indeed, many scientists today now admit that the universe seems to have been specially crafted for life.

40. Words of Wisdom from the Scientific Community.

"The origin of life appears to be almost a miracle, so many are the conditions which would have had to be satisfied to get it going." 1

"It would be very difficult to explain why the universe should have begun in just this way, except as the act of a God who intended to create beings like us." 2

1 Sir Francis Crick, Scientific American (February, 1991)
2 Stephen Hawking, 'A Brief History of Time', p.127

41. A Delicate Balance.

There are many known factors that must be precisely met in order for life to exist here on Earth. Any slight variation, in any of these factors, would spell disaster. The rate of the Earth's rotation for example, is ideal. If it were to slow down to 10% of its present rate, then life as we know it could not exist. Plants would burn during the day, and then freeze during the night. If on the other hand the rotation were to speed up too much, winds would increase to unbelievable levels. In fact, Jupiter rotates on its axis once every 10 hours and the winds there are in excess of 1000 MPH! So again, we see great precision in the design of the Earth, and that is what allows it to support life. And when you see all of these evidences of design, you must logically expect there to be a designer.

42. The Glue That Binds Us All.

There is a powerful force within the universe, holding together all the atoms and making the various elements (Hydrogen, Helium, Oxygen, Iron etc.) possible. If however, this force was even 5% Weaker, then the only element that could exist on Earth would be Hydrogen and that would make life impossible. At the same time, if that same force were just 5% stronger, everything would clump together into giant molecules. Life would also be impossible under these conditions.

43. Where's the Link?

The classification of species, based on similarities, like those of the anatomy, is known as taxonomy. Taxonomy, through the years, has shown that species are divided into distinct classes, with no

transitional sequences being apparent. Recently, the advent of molecular biology has added a whole new chapter to the field of taxonomy. It has been found, for example, that the blood chemical, hemoglobin, varies between species. Differences in protein can also be used to measure the differences between species. So we see that scientists are not only able to separate species on the basis of anatomy, but on the basis of molecular differences as well. Further, molecular biology, like anatomical biology, shows no evidence of intermediate species. In other words, molecular biologists have found no evidence to support the evolutionist's claim that fish evolved into amphibians, which evolved into reptiles, which evolved into mammals.

44. Survival of the Fittest?

When Darwin was first developing his theory, he was unable to come up with an answer to the key question of what caused a species to change (i.e. evolve) in the first place. After some effort, he came up with his theory of "survival of the fittest", suggesting that more individuals of each species were being produced than the environment could support. The theory suggests that members of the species that possessed slight advantages over the others would be more likely to survive and pass on their genetic makeup to their offspring. The giraffe's long neck for example evolved gradually over time, allowing the animals to reach higher and higher into the trees for food, especially during times of famine. Through the process of "natural selection", the giraffes with the longest necks were best equipped to survive and hence pass on their "long neck" genes to future generations. But how would accidental variations be preserved within a species? Darwin didn't know it at the time, but today biologists now possess a model of genetic inheritance that demonstrates how a genetic trait can be passed over several generations and influence an entire population. While this may appear to support the evolution argument, it really doesn't. You see, not all traits are passed on through genetics. The children of a father born with three fingers are no more likely than anyone else to he born with three fingers. At the same time, experiments in breeding domestic animals have proven that some species do indeed undergo some degree of change, but there is an outer limit to change. Just as with Darwin's finches, the cross between a Cocker Spaniel and a Poodle becomes a Cock-a-Poo. But it is still a dog, not a giraffe.

45. Where's the Advantage in This?

Evolution cannot explain how intermediary species survived between stages. For example, we are told that birds evolved from reptiles and that the scales common to reptiles evolved, over millions of years, into feathers. A bird's wing and feathers are, of course, designed with absolute perfection in order to make flight possible. The feathers have to be of a specific strength. They have to be capable of withstanding deformation. And there has to be exactly the right amount of feathers in order for flight to occur. Thinking about this scenario, it is very difficult to imagine the process continuing through natural selection as the reptile's scales become less useful to them (as they begin to look more like feathers) as the animal evolves into a bird with deformed wings that don't even function as such. There appears to be no "environmental advantage" at any stage in the process, and in fact, there seem to be considerable disadvantages!

46. Darwin, You Take My Breath Away!

As evolutionists argue that birds evolved from reptiles, there is another problem to consider -- - respiration. There are no other known vertebrate species on Earth that have a lung system similar

to that found in birds. The question then, is how the intermediate species that must have existed between reptiles and birds managed to survive with a malfunctioning respiratory system that would surely result in immediate death to the creature. When you really sit down and think about it, many of the key premises upon which evolutionary theory is based seem utterly ridiculous.

47. The Jet and the Junkyard.

Not only did Darwin believe that natural selection was a method of survival, he also believed that evolutionary changes came about as random chance occurrences. Yet, if you were to pick up a pencil and ask someone where it originated, they would likely tell you that someone made it. It would be absolutely silly for them to suggest that it came about through a series of highly unlikely and random events in the universe. But that is the very argument presented by evolutionists. Sir Fred Hoyle is one of the world's leading astronomers and mathematicians. Although he is not a creationist, he did have this to say about evolution to an audience at the British Academy of Science: "Let's be scientifically honest. We all know that the probability of life arising to greater and greater complexity and organization by chance through evolution is the same probability as having a tornado tear through a junkyard and form out the other end a Boeing 747 jetliner!"1 In mathematical terms, he calculated the chances of life just happening by random chance to be one in 1040,000. That's a one with 40,000 zeroes following it! For perspective, consider the following examples.

A one in a million chance is one in 106

The distance around the Earth is 109 inches!

The visible universe is about 1028 inches in diameter!

1 As quoted in Carlson, Ron and Decker, Ed; Fast Facts on False Teachings; Harvest House Publishers; Eugene, OR; 1994; p. 55.

48. Evolution is Against the Law.

All observations, from the earliest beginnings of time right up to the present, have shown over and over again that life only comes from life. Period. So fundamental is this reality in fact that it is called the Law of Biogenesis, and it has never been violated under observation or experimentation. Clearly however, the theory of evolution would require the violation of this law in order to suggest that life somehow came into existence from purely non-living matter, by purely natural processes.

49. Soup's On!

Despite such enormous odds against the sudden appearance of life by completely random chance, evolutionists still argue for this point. They tell us that before life there was nothing but what they call a "prebiotic soup", basically a great big puddle of chemicals. This soup contained a mixture of organic and inorganic molecules, which somehow, just found itself in random possession of all the conditions necessary to create life -- which it supposedly did. From that accident, from that most unlikely of events, somehow everything on this planet evolved, including palm trees, Basset Hounds and Elvis Presley. This not only sounds absurd; it also violates the law of biogenesis, which tells us that life can only come from life. A number of years ago a molecular biologist named Harold

Morowitz determined that if one were to break down a 'simple' cell according to its chemical bonds, the cell could not reform even under the most ideal natural conditions. In fact, he calculated the likelihood of reassembly to be one chance in 10100,000,000,000,000. A number of attempts have been made by scientists to create a "prebiotic soup" and apply all of the ideal conditions for life to develop. Of course, none of these experiments has been successful in creating life.

50. Where's The Beef?

You would think that evidence for the existence of the so-called prebiotic soup from which life first appeared would be critical to the theory of evolution. Surprisingly though, this theory exists with no such evidence. In fact, while it would seem feasible to expect that remnants from such prebiotic soup should have been trapped in rocks from those early days -- no such remnant has ever been found. Even rocks which are, according to geologists, close to 3,900 million years old show no traces of this prebiotic soup. Even so, its existence has become widely accepted as truth!

51. Too Much Oxygen Spoils the Broth.

Not only is there no empirical evidence for prebiotic soup, there are other problems with the concept in theory as well. It has been determined for example; that any organic substances formed in the early days of the Earth would have been quickly oxidized and destroyed in the presence of oxygen. Thus, these organic compounds would simply not have survived long enough to be able to accumulate into a prebiotic soup -- let alone long enough for life to 'spring into existence'.

52. A Hole In The Ozone Theory.

Some have suggested that Earth's early environment must not have contained any oxygen, meaning that the simple organic compounds could have avoided destruction by oxidization. Even if it were true that there was no oxygen at the time, that would mean that there would have been no ozone layer in the Earth's upper atmosphere as there is today. Without that protective layer of ozone, lethal radiation from the sun would have destroyed any organic compounds that may have existed.

53. A Leap in Logic.

Prior to the 1950s, evolutionists hoped that science would one day be able to provide signs of intermediate steps between non-living molecules and the simplest cell. In other words, scientists were hoping to show that life could have indeed come about spontaneously, from purely non-living matter. However, since the rise of molecular biology in the early 1950s it has been shown that there are no intermediate forms leading to the evolution of a simple cell from chemical synthesis. Life comes from life. Period. (See "Evolution is Against the Law"). Nor is there evidence for a primitive simple cell evolving into the complex cells we have today.

54. There is No Such Thing as a Simple Life Form.

Evolutionists tell us that we came from some type of simple cell like an amoebae. What do we know about the amoebae? It is a one-celled animal that can crawl towards food. If necessary it can produce a pseudopod, a false foot, to propel itself towards the food. When the foot is no longer needed it disappears. The amoebae has chromosomes, genes and DNA. Its method of reproduction is an extremely complicated and precise process. So, even the lowly amoebae, which at first may

appear to be an unbelievably simple life organism, is upon closer examination found to be quite complex. Evolution cannot even begin to answer the question of how this seemingly simple cell developed without some intelligent planning and design behind it.

55. Try to Figure the Logic in this...

Doesn't it seem strange that brilliant men could spend their entire lives in a lab trying to create life just to show that NO INTELLIGENCE was necessary to form it in the first place? For hundreds of years brilliant men have been trying - and failing – to make even the simplest life, and yet those same men would have you believe that life began through nothing more than time and chance.

56. The First Step?

Evolutionists have some difficulty in answering questions about the amoebae's reproduction. The amoebae, when it reproduces, still reproduces its own kind. It does not produce another life form. Neither does it produce male or female. So, how, when and why did the amoebae evolve into different genders and even different, higher life forms?

56. Evolution and Mutation.

One thing that evolutionists have to admit is that mutations are the only source of new genetic information for natural selection to work on. Webster's dictionary defines a mutation as "a sudden departure from the parent type in one or more heritable characteristics, caused by a change in a gene or a chromosome." Dr. H.J. Muller, who won the Nobel Prize for his work on mutations, said "It is entirely in line with the accidental nature of mutations that extensive tests have agreed in showing the vast majority of them detrimental to the organism in its job of surviving and reproducing. Good ones are so rare we can consider them all bad." (Bulletin of the Atomic Scientists, 11:331). It is important to remember, that in order for a mutation to be passed on to future generations, it must occur in the sperm or egg cells of the parent. The probability of getting even five mutations in the same cell is estimated to be 1 chance in 100,000,000,000,000,000,000,000. If there was a population of 100 million organisms, with a reproductive cycle of 1 day, such an event would occur once every 274 billion years! Again, it requires more faith to believe in those odds, than it does to believe in a creator.

57. Remember, it's the <u>Theory</u> of Evolution!

Critics of creationism claim that the Genesis account of creation can never be proven by science. This is true. But the same holds true for Darwin's theory of evolution. Many seem to have forgotten that evolution is only a theory, not a scientific fact. It is treated in textbooks, science journals, classrooms and TV documentaries as fact and this has led to its perceived credibility. But one thing is clear; the theory of evolution is filled with theoretical, logical, and scientific errors. Accepting this theory requires as much, if not more faith than accepting the creation account.

58. I Guess That's Why They're Called Missing Links.

The fossil record is often shown in textbooks as a tree trunk with branches growing out from it. While the fossil tree shows horizontal branches, which demonstrate the supposed mutation of species into other species, there is absolutely no empirical evidence to support the existence of such horizontal branches. In other words there is no evidence in the fossil record to support the existence of any intermediary species. These are known as missing links, and yet even though they are missing, they are the cornerstone of the entire theory of evolution.

59. Sorry Darwin, It's Time for a New Excuse.

The missing links in the fossil record were clearly a very big problem for Charles Darwin and his theory of evolution. But the only explanation he could come up with was that we have "extreme imperfection" in the fossil record. In Darwin's day only a small portion of fossil-bearing strata had been investigated and so he lived in the hope that further digging would undoubtedly unearth these missing links. Since 1860 however, virtually every fossil species that has been unearthed has shown that only near-relatives of existing species ever lived. In other cases, unique species were found, unlike any we have existing today. But never have any fossils been found that can be classified as ancestors or descendants of other species. Never have any of the missing links, pertinent to the theory of evolution, been discovered.

60. I Must Confess.

"...I fully agree with your comments on the lack of direct illustration of evolutionary transitions in my book. If I knew of any, fossil or living, I would certainly have included them. You suggest that an artist should be used to visualize such transformations, but where would he get the information from? I could not, honestly, provide it, and if I were to leave it to artistic license, would that not mislead the reader?....You say that I should at least "show a photo of the fossil from which each type of organism was derived." I will lay it on the line-there is not one such fossil for which one could make a watertight argument...It is easy enough to make up stories of how one form gave rise to another, and to find reasons why the stages should be favored by natural selection. But such stories are not part of science, for there is no way of putting them to the test...."1

1 -- Dr. Colin Patterson, senior paleontologist at the British Museum of Natural History, responding to a letter from a reader of his book, Evolution.

61. No Alternatives.

Something that the fossil record demonstrates clearly is that species appeared suddenly, with no sequential relatives. In other words, each species appears in the fossil record as if it was created then and there, with no link (or ancestor) to any older fossils. And many scientists, realizing this, are now saying that Darwin's theory that species evolved slowly over time must be incorrect. Even so, these same scientists have no idea how these species were able to evolve suddenly. Nor do they understand why. In an article dealing with this very issue, Time magazine noted, "Here scientists delicately slide across data-thin ice, suggesting scenarios that are based on intuition rather than solid evidence."1

1 Time; December 4, 1995; "When Life Exploded" by J. Madeleine Nash; p. 73.

62. Beating the Odds.

There are only a few species today that we can observe in real time, that seem to benefit from mutations. Viruses and bacteria are examples. But these creatures have populations in the quadrillions (one quadrillion is 1,000,000,000,000,000 in case you're wondering). According to theoretical calculations that were reached in the 1960s, the greater a population size, the greater the possibility it could survive mutational advancement. The reason is that far more of the mutations in a species are harmful than favorable. A population would have to be large enough to withstand the trials of destructive mutations until successful ones were reached, and clearly we don't see those kinds of populations in the vast majority of animal species.

63. What's New?

Darwin saw nature as a continuous evolutionary process following the principles of natural selection. If the theory of evolution is correct, then shouldn't we see evidence of new species evolving today? In fact, we should see new species constantly appearing at a rate greater than extinction. But we don't.

64. A Missing Link Found?

While there are missing links in the fossil record, some species have been found that supposedly support the theory of evolution. One example is the fossil discovery of a creature known as Archaeopteryx, a primitive bird that had some reptilian characteristics in its skeleton. But its wing was designed, as are other birds, properly equipped, as far as we can tell from its skeleton, for flight. Although it did have some reptilian features, this is not sufficient evidence for evolutionists to argue that the Archaeopteryx is indeed an intermediate step between reptiles and birds. One of the characteristics which led paleontologists to consider a link between reptiles and birds was the fact that the Archaeopteryx had teeth. But there are other examples of birds in the fossil record that had teeth and we also know that there are also reptiles that don't have teeth. Another characteristic present in the skeleton was claws on the wings. But ostriches have claws on their wings and they are classified as birds, not an intermediate between a reptile and a bird. Clearly, skeletal features alone are not enough to determine whether a species is part of a sequence that will ultimately lead to a brand new species. Clearly, if evolution were indeed true, then evolutionists wouldn't have to settle for such a poor example to demonstrate their theory.

65. What Came First, The Archaeopteryx or the Egg?

Interestingly, a fossil has been unearthed in Colorado of a bird, that scientists claim is older, or at least as old as Archaeopteryx (see "A Missing Link Found?"). So, we know that birds already existed at the time when the supposed ancestor of birds appeared.

INTELLIGENT DESIGN

IRREDUCIBLE COMPLEXITY

*I*n 1996, the Free Press published a book by Lehigh University biochemist and intelligent design advocate Michael Behe called Darwin's Black Box: The Biochemical Challenge to Evolution. The

book's central thesis is that many biological systems are "irreducibly complex" at the molecular level. Behe gives the following definition of irreducible complexity:

" By irreducibly complex I mean a single system composed of several well-matched, interacting parts that contribute to the basic function, wherein the removal of any one of the parts causes the system to effectively cease functioning. An irreducibly complex system cannot be produced directly (that is, by continuously improving the initial function, which continues to work by the same mechanism) by slight, successive modifications of a precursor system, because any precursor to an irreducibly complex system that is missing a part is by definition nonfunctional. An irreducibly complex biological system, if there is such a thing, would be a powerful challenge to Darwinian evolution. (p. 39)

Intelligent design (ID) is the proposition that "certain features of the universe and of living things are best explained by an intelligent cause, not an undirected process such as natural selection." (Wiki)

Irreducible complexity (IC) is an argument by proponents of intelligent design that certain biological systems are too complex to have evolved from simpler, or "less complete" predecessors, through natural selection acting upon a series of advantageous naturally occurring, chance mutations.

The argument is that some systems and structures are so complex that it is impossible that they could come into existence by chance incremental steps. Say for example a molecular machine like the energy converter that is the ATP synthase molecule in mitochondria is made up of a certain number of components. Unless they all form together then the 'machine' will not be able to function.

The term "irreducible complexity" was coined by Behe, who defined it as applying to:

A single system which is composed of several interacting parts that contribute to the basic function, and where the removal of any one of the parts causes the system to effectively cease functioning. The argument is central to intelligent design, and is rejected by the scientific community at large,which overwhelmingly regards intelligent design as PSEUDOSCIENCE – This is simply asserted by the writer – but not backed up. (Darwin's Black Box p39 in the 2006 edition)

But note anti- ID people simply assert their own position without much in the way of argument

They are way too glib in their assertions – verges on arrogance!

Eg The Mullerian Two-Step: Add a part, make it necessary (or, Why Behe's "Irreducible Complexity" is Silly) - A simple and concise explanation for why the anti-evolutionary argument from "irreducibly complexity" is flawed —Evolutionists claim "gradual evolution by natural selection readily evolves "irreducibly complex" structures." Glib and short on detail. Is it so readily possible. One is left asking how can you say that?

Such a writer forgets that these arguments are not about science but about MATHEMATICAL LOGIC. Both the intelligent design proponent have no argument about what has been discovered about cells. The difference between them is how they see them coming into existence. The Scientific

method as such cannot be used to decide that. The claim that ID Theory is not 'science' has no bearing on the reasonable conclusion that God has been involved in the design process

Based on this understanding of the definition of 'science', it is true the Intelligent Design Theory is NOT Science. Why not? Secular scientists are correct when they say that the theory of Intelligent Design may be good at making observations and even interpreting data, but woefully deficient in developing investigative experiments and methodological activities that can move their observations forward. "It's in this second area of experimentation and scientific methodology that ID theorists fail to measure up to the traditional definition of science".

But should that really surprise us? After all, ID Theory is attempting to examine something that really CAN'T be repeated in the laboratory. What kind of investigational experiments COULD really be conducted when examining the possibility of an intelligent designer? How could we EVER design experiments to examine the first creative activities of the universe? Does the fact that investigative experiments and methodological activities cannot be conducted mean that ID Theory should be scrapped along with the 'Flat Earth Theory'? Not at all. Let's be clear here; Intelligent Design Theory is not science; it is simply the best and most reasonable conclusion FROM the science. When we say that ID theory is not science, we are NOT saying that:

Intelligent Design Theory is Irrational

Many very rational and reasonable scientists are, in fact, theists who believe that God, as an intelligent designer, has designed and created the universe and all life within it (for a very partial list of great Christian thinkers and scientists, visit THIS PAGE). When ID proponents take a position in support of intelligent design, they are reasoning through the evidence, utilizing the transcendent laws of logic. Proponents of intelligent design are as rational (they are reasoning through the evidence in a logical way) as opponents of intelligent design. It should be noted here that anti- ID evolutionists tend to play the man rather than the argument.

Intelligent Design Theory Ignores or Contradicts the Sciences

ID proponents are looking at the same scientific data that ID opponents examine in an effort to understand the origin of life in the universe. They are not ignoring the scientific data at all but let's face it; their conclusions are certainly different than those of naturalists who oppose them. Both sides in this debate argue that the other is misinterpreting some portion of the data, but it would be unfair to say that proponents of the ID Theory are either unaware or suppressing the science.

Intelligent Design Theory is Without Evidence

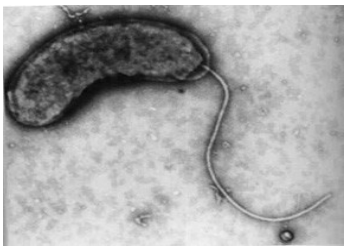
Proponents of ID will point to a number of evidences that they believe support their case (we'll discuss some of the 'areas' of evidence that they interpret in just a minute), and these evidences come from the scientific data and collection that has taken place over the years. They will argue that their case is every bit as evidential as the case for naturalism.

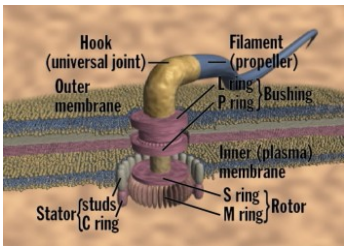
Intelligent Design Theory is Untrue

In the end, the real issue is whether or not either interpretation of the evidence is the most reasonable conclusion. While there is evidence on either side of the issue, each of us must look and decide if the evidence actually PROVES anything. But there is nothing in the nature of the ID Theory investigation and case that PRECLUDES it from being true on the basis of its relationship to the sciences. In other words, ID Theory may be untrue, but if so, it is NOT because it has ignored the scientific data or is unaware of the data. It's all going to come down to an INTERPRETATION of the data using the reasoning powers that each of us has to examine the evidence before us.

The Reasonable Nature of ID Theory

In a similar way, those who propose the Intelligent Design Theory examine these four factors when they examine the nature of biological organisms. They come to much the same conclusion as the detectives in our story. Let me give you an example from the most famous organism cited by ID Theorists, the Bacterium Flagellum:





Some bacteria have the ability to move rapidly and change direction by utilizing a small motor like device called a "flagellum". The flagellum 'tail' spins and whips in order to propel the organism forward. The flagellum spins and whips around at the rate of 200 to 1000 revolutions per minute, just like a motor propeller! These flagellum tails can change direction and tilt to speed up or decelerate the bacteria and change their direction. When we look at the flagellum under magnification, we see a specific assembly of specialized parts that have been assembled in a specific way to form a motor that is then used to propel the bacterium! Now this flagellum is constructed from 40 individual parts. These parts are assembled in a meaningful way and the flagellum CANNOT function unless all the parts are present at the same time.

The question of course is, how did these flagellum mechanisms come into being? In other words, we have to ask ourselves:

"Did the flagellum develop accidentally?"

"Did the flagellum come about as a result of 'natural' causes?"

"Did the flagellum create itself?"

"Was an outside intelligent agent involved in the creation of the flagellum?"

The Connected Complexity of the Flagellum

The 40 piece flagellum has been compared to a mousetrap. All the pieces of the mouse trap must exist in the assembled form in order for the mousetrap to function. Any one of the pieces on its own (the board or the pin or the spring or the wire hammer) are useless unless they work in harmony with the other pieces. There is a functional MINIUMUM requirement here. You cannot reduce the mousetrap beyond a certain point. There are a minimum number of pieces that must be assembled to make the trap work. It must be at least this complex to function at all. This level of reduction is called "irreducible complexity". It is the minimum point beyond which the machine cannot function. The flagellum also has a minimum 'level' of functionality. It has an irreducible complexity. It requires all 40 parts to appear at the same time, assembled in a specific way in order to work! Does this connected, irreducible complexity tell us something about its origin? All machines that demonstrate an irreducible complexity are the result of intelligent agents that have the ability to assemble these parts in a thoughtful, connected and complex manner. Is it 'possible' that the connected complexity of the flagellum occurred accidentally, naturally or from its own effort? Yes, anything is possible. But is it 'reasonable"? No. The best and most reasonable inference from the evidence is that an outside intelligent agent is responsible for the flagellum.

The Existence of Specific Information within the Flagellum

In addition to the connected complexity of the flagellum, specific information appears at the most fundamental levels of the organism. Remember that the flagellum is built from a number of proteins shaped into the variety of components necessary for the flagellum. These proteins are in turn built from amino acids. These acids have to come together in a specific way so they can fold up onto themselves to form the specific shapes and clusters that we call proteins. But ask yourself the question: how do these amino acids know how to join to each other? Is it accidental? Is there a natural attraction between the acids that acts like magnets coming together? No, the activity of the amino acids and proteins is controlled by DNA. The pre-existing DNA provides the organism with information and direction; guiding the process of protein formation. DNA is the most densely packed molecule in the known universe. It is a highly complex, highly ordered and extremely large assembly of information containing more data than the largest human library. DNA poses a dilemma. Proteins cannot form without the DNA information and direction. But DNA is highly complex, ordered and informational. Where does it come from? As it turns out, the DNA molecule is filled with specific information that directs the assembly of the overall organism. And it is required for the protein to exist. The 'irreducible complexity' of the protein is not just a number of simple amino acid chemicals. The 'irreducible complexity' of the protein also includes the most complex known molecule in the universe: the DNA molecule. Is it 'possible' that the specific information required to assemble the flagellum occurred accidentally, naturally or from its own effort? Yes, anything is possible. But is it 'reasonable'? No. The best and most reasonable inference from the evidence is that 'information' comes from intelligence and an outside intelligent agent is responsible for the DNA that guides the formation of the flagellum.

The Resemblance to Past Patterns Compared to the Flagellum

As we look at the flagellum (even before we recognize its irreducible complexity and specific information), we have an intuitive sense that this little motor simply cannot be the product of accidental or unintelligent, unguided forces. We are not much different than the two detectives who had an intuitive sense that they were looking at a homicide scene. Why do we feel this way? Well, let's look at the mechanism again. Do we recognize patterns that exist in other designed objects? The Flagellum bears a striking resemblance to other designed motors! If we came upon an outboard boat motor sitting in the wilderness, we would know with certainty that it is the product of intelligent design, and the flagellum is no different. It displays all the same design factors that are present in the outboard motor. It too is the obvious result of intelligent design. And as we look at the entire cell, with all of its ordered and specific machinery, and observe the way in which these cellular machines operate with each other, we recognize that it is unreasonable to believe that these elements came together without intelligent influence. Is it 'possible' that the resemblance to other known designed objects is the result of accidental, natural or self directed processes? Yes, anything is possible. But is it 'reasonable'? No. The best and most reasonable inference from the evidence is that an outside intelligent agent is responsible for the resemblance between the flagellum and other known designed objects.

The Inadequacy of Alternative Explanations for the Flagellum

Finally, we must examine the alternative possibilities to see if there just might be a better explanation that can explain the existence of the flagellum. If we, for example, believe that the flagellum came into being as a result of natural processes (natural selection), then we are going to have to explain a few things. Natural selection argues that small changes occur over time. The first part of the motor appears in the bacterium, then thousands of years later, another part appears, then when all the parts appear, they come together to form the flagellum. But the laws of natural selection would actually work AGAINST this possibility, because Darwin argued that organisms only KEEP elements that BENEFIT the organism. Useless pieces are discarded and are NOT passed down to the next generation of the organism. So, as these parts of the flagellum motor slowly appeared in the bacterium, they would have no function on their own and would have been selected OUT and eliminated if natural selection is to be believed. 30 of these parts are unique to the flagellum and don't exist in any other capacity in the bacterium. They only exist to assemble the motor, and they have to come together in a specific way and a specific order! If natural forces are at work here, then we have to explain how the 39 piece 'pre-flagellum' structure contributed to the organism. But more importantly, we would also have to explain the nature and functionality of the 38 piece organism, the 37 piece organism, the 36 piece organism, and so on… In other words, naturalism must provide a 'functional pathway' from a single protein contributing to the organism, to the complete 40 protein machine (including a reasonable function for every mechanism in between). Is it 'possible' that alternative accidental, natural or self- directed processes provide an explanation for the existence and nature of the flagellum? Yes, but once again, this is not really the question that should matter to us. The real question is this: are these alternative explanations 'reasonable'? No. The best

and most reasonable inference from the evidence is that an outside intelligent agent is responsible for the existence of the flagellum.

Once again, let's ask an important question: "Have the investigators of the flagellum been unreasonable in their forensic approach to examining the evidence?" Given the nature of the flagellum, is it really all that unreasonable for us to conclude that it is NOT the result of natural, accidental or self-directed forces? Using these four principles, theists have investigated and examined the evidence and have concluded that there is an intelligent agent involved in the flagellum. They have not been irrational. They have not ignored the scientific evidence. They don't believe something that is without evidence, and they don't believe something that is evidentially untrue.

Underestimation of True Complexity

In fact the rejection is willingly blind. Those who argue against irreducible complexity forget for example that though there is an extremely small chance of an ATP synthase molecule coming into existence, it is part of a much bigger machine called a cell. It first of all is part of a 6 molecule electron transport chain which in turn happens to be embedded in a lipid bilayer called the inner membrane which happens to divide the interior of the mitochondrion into the intermembrane space and the matrix. This mitochondrion contains no less than 151 required polypeptides, But there's more! This mitochondrion is part of a bigger machine called the cell which to function must have numerous other organelles each with particular functions. For the cell to survive these must all be able to function at once.

Important molecular machine (eg ATP synthase) → many critical structures in Mitochondrion (eg Electron Transport Chain and associated enzymes) → Interdependency of various organelles with all the correct coded information on the DNA → Interdependency of Cells in Organism → Relationship between tissues whose processes are modified by finely tuned hormonal and growth factor information → Interrelationship between organs → Relationship between members of same species ; the necessity of two complementary sexes (viz may fly)→ critical symbiotic relationships between organisms

But ant ID people focus on one little part and think that if they can somehow pull a rabbit out of a hat – ie conceive of a step by step process that might bring about a certain structure – that that constitutes proof that it can occur. But all these other functions musty be able to occur simultaneously. They cannot be added one by one.

The Cascades Example

A running theme in much of molecular biology is genetic cascades, in which one gene triggers another gene, which triggers another. Two examples of cascades cited by Behe are the formation of blood clots and the complement system. The complement system is a set of proteins that are activated by antibodies; these proteins then create holes in the cell membranes of the invading

bacteria and thereby disrupt the specific balance of solutes and ions required for the bacterium to live.

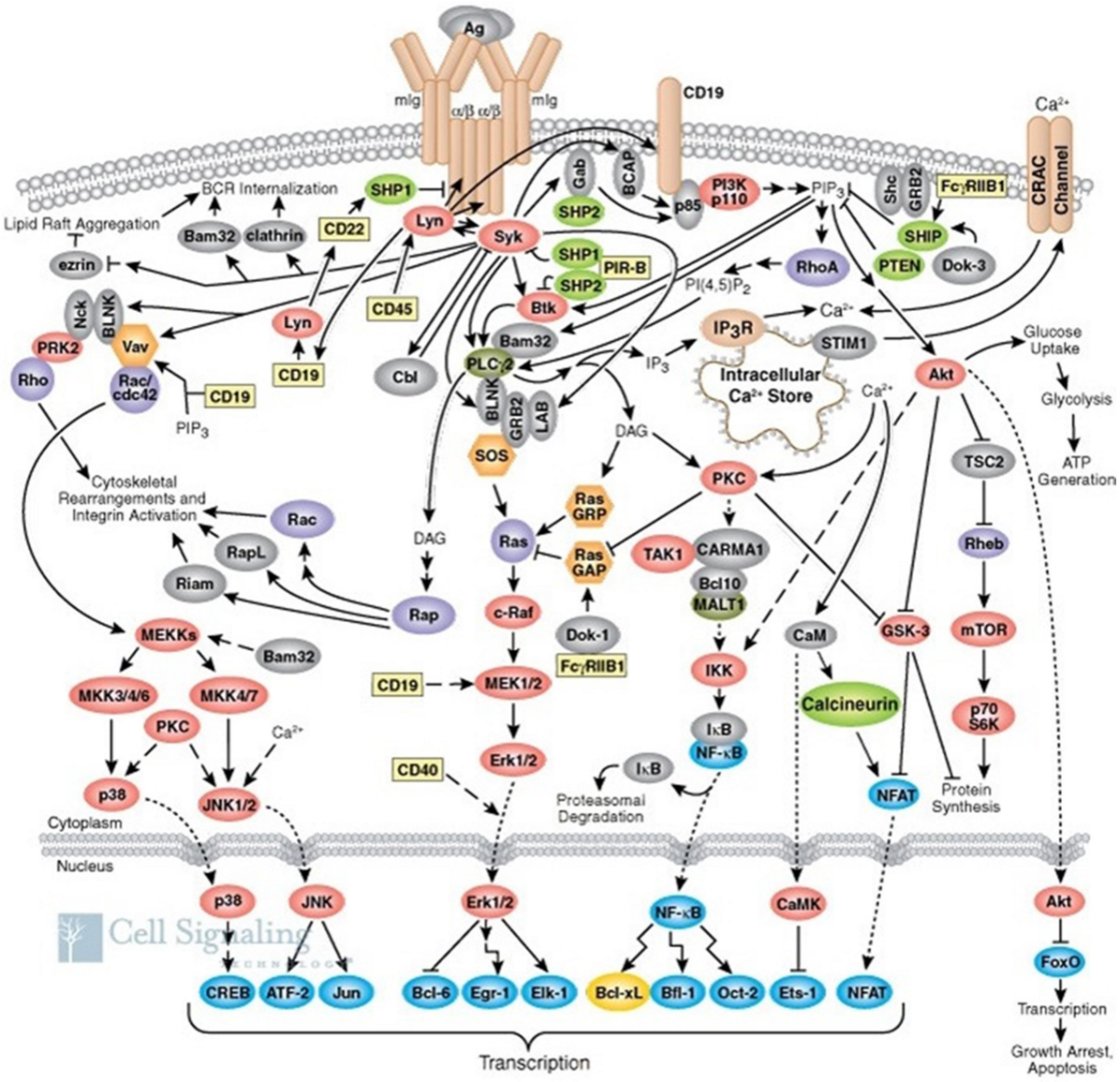
A major claim of Behe's is that biochemical cascades, in which one enzyme activates another, which activates a third (and so on), are "irreducibly complex". The claim is that without all the parts of the cascade, the cascade cannot function, and that therefore known evolutionary processes could not produce such a cascade by sequential addition of steps. p.87:

> Because of the nature of a cascade, a new protein would immediately have to be regulated. From the beginning, a new step in the cascade would require both a proenzyme and also an activating enzyme to switch on the proenzyme at the correct time and place. Since each step necessarily requires several parts, not only is the entire blood-clotting system irreducibly complex, but so is each step in the pathway.

We can easily see that this broad statement is false; it is possible to posit such an evolutionary process. Furthermore, we can go from such a process to the expected results of such a process, and thereby make predictions as to what might be found in the living world. – but none forthcoming – again just the assertion

Indeed, the hint of a mechanism can be found in Behe. Obviously, the cascade must have a start, so how does it start? p.83:

> ... it seems there is always a trace of thrombin in the bloodstream. Blood clotting is therefore auto-catalytic, because proteins in the cascade accelerate the production of more of the same proteins.



The signalling processes shown here are initiated by the binding of an antigen to a receptor which is an immunoglobulin protein embedded in the cell membrane. Receptor aggregation rapidly activates complex signalling cascades involving multiple adaptor proteins, kinases, phosphatases, GTPases and transcription factors. The complexity of BCR signaling permits many distinct outcomes, including differentiation, survival, apoptosis, proliferation and tolerance.

Cellular Communication & Cascades

Information must come from outside cells

"Cells 'talk' to each other by passing chemical signals back and forth. They also sense their physical surroundings through proteins on their surfaces called integrins. All these cues serve to orient the cells in the body and inform them about how to behave so that they cooperate with the rest of the cells in the tissue." "The cells are not complete by themselves. They need signals from outside,"

says Mina J. Bissell of Lawrence Berkeley National Laboratory.

Infinite complexity of information flow in cells
But when it comes to figuring out the best way to explore information flow in cells, Tyers* jokes that it is like comparing different degrees of infinity. “The interesting point coming out of all these studies is how complex these systems are — the different feedback loops and how they cross-regulate each other and adapt to perturbations are only just becoming apparent,” he says. “The simple pathway models are a gross oversimplification of what is actually happening.” Mike Tyers, a systems biologist at the University of Edinburgh, UK

* “When we started out, the idea was that signalling pathways were fairly simple and linear,” says Tony Pawson, a cell biologist at the University of Toronto in Ontario. “Now, we appreciate that the signalling information in cells is organized through networks of information rather than simple discrete pathways. It’s infinitely more complex.”

An anti ID argument which says The Krebs Cycle can come about by evolution.

The Krebs cycle (also known as the tricarboxylic acid cycle, also known as the citric acid cycle) is a key piece of metabolism. Almost any serious biology class at least touches on it, and it is often analyzed in great detail in a biochemistry class. (I once had to memorize the beastie.)

The Krebs is a multifunctional center of metabolism -- the second stage in the metabolism of glucose, useful in burning other fuels, useful as a source of various carbon units, etc. Nine different enzymes drive the Krebs. At first glance, this would appear to be the keystone of the cell, the linchpin, "irreducibly complex". Remove any enzyme, and you obviously no longer have a cycle. Kablooie!

Unfortunately, Behe doesn't mention the Krebs in his book. A pity. Here is a complex biochemical system, clearly an excellent hook on which to hang his thesis. Right?

However, closer inspection of the literature reveals problems with such a "Krebs cycle is irreducibly complex" hypothesis. In some systems, a pathway called the glyoxylate shunt exists, which consists of a shortcut across the cycle. Other variant pathways exist. So, rather than being a minimal design fixed in stone, the Krebs is one of several alternatives. Furthermore, some species get by without a complete Krebs cycle. For example, determination of the complete DNA sequence of the bacterium Haemophilus influenzae confirmed that it is completely missing genes for several steps in the Krebs cycle.

This leads to a question: if the Krebs cycle, in all its complexity, is not "irreducibly complex", how can we have any confidence in our ability to recognize an "irreducibly complex" system? After all, that is the only criterion we have to recognize one: that we cannot postulate a reasonable evolutionary pathway.

One of Behe's claims is that scientific papers detailing plausible Darwinian models for the evolution of complex biochemical systems are nonexistent. p.179:

There has never been a meeting, or a book, or a paper on details of the evolution of complex biochemical systems. I hope he corrects this in his next book/edition, since it is so clearly false.

Almost simultaneously with the publishing of "Darwin's Black Box", came the following paper:

The puzzle of the Krebs citric acid cycle: Assembling the pieces of chemically feasible reactions, and opportunism in the design of metabolic pathways during evolution.

Journal of Molecular Evolution, Sep 1996, 43: 293-303

Melendez-Hevia, Waddell & Cascante

These authors take up exactly the problem which Behe claims is ignored: how could a complex biochemical pathway evolve by a step-wise Darwinian process, with each intermediate pathway providing selective advantage.

What is worse for Behe, though, is that looking through the bibliography for this paper reveals multiple citations for similar analyses of other biochemical pathways. For example, some of the same authors have four papers on the evolution of the pentose phosphate pathway, dated 1985, 1988, 1990, and 1994, and a paper on glycogen biosynthesis from 1993. They cite other analyses of Krebs cycle evolution from 1981 (x2), 1985, 1987 (x2), 1992, as well as two books on the general subject of metabolic evolution from 1992.

Behe's literature search, which supposedly found nothing, covered up to 1994.

Emboldened by this, I did a quick Entrez search for papers on the evolution of amino acid biosynthesis (drawing on a weak memory). Sure enough, it was no problem to find a host of citations, including:

Orig Life Evol Biosph 18: 41-57 (1988)[88217276]. New prospects for deducing the evolutionary history of metabolic pathways in prokaryotes: aromatic biosynthesis as a case-in-point. S. Ahmad & R. A. Jensen

Mol Biol Evol 2: 92-108 (1985)[88216112]. Biochemical pathways in prokaryotes can be traced backward through evolutionary time. R. A. Jensen

Microbiol Sci 4: 258, 260-2 (1987)[91058939]. Enzyme specialization during the evolution of amino acid biosynthetic pathways. C. Parsot, I. Saint-Girons & G. N. Cohen

Annu Rev Microbiol 30: 409-25 (1976)[77043263]. Enzyme recruitment in evolution of new function. R. A. Jensen

Proc Natl Acad Sci U S A 76: 3996-4000 (1979)[80035004]. Origins of metabolic diversity: evolutionary divergence by sequence repetition. L. N. Ornston & W. K. Yeh [6]

So we are left with the question: If the Krebs cycle, a complex circle of enzymatic reactions, is not "irreducibly complex", how do we recognize a system that is?

We are also left with a conclusion: if Behe were to publish his literature search in a journal, there is only one appropriate journal: The Annals of Irreproducible Results.

A proposal for the evolution of the functioning of aldosterone and its partner the mineralocorticoid receptor - Another Anti- Intelligent Design Argument which proposes the idea that complex systems can evolve

"According to Darwinian theory, complexity evolves by a stepwise process of elaboration and optimization under natural selection. Biological systems composed of tightly integrated parts seem to challenge this view, because it is not obvious how any element's function can be selected for unless the partners with which it interacts are already present. Here we demonstrate how an integrated molecular system—the specific functional interaction between the steroid hormone aldosterone and its partner the mineralocorticoid receptor—evolved by a stepwise Darwinian process. [7]Using ancestral gene resurrection, we show that, long before the hormone evolved, the receptor's affinity for aldosterone was present as a structural by-product of its partnership with chemically similar, more ancient ligands. Introducing two amino acid changes into the ancestral sequence recapitulates the evolution of present-day receptor specificity. Our results indicate that tight interactions can evolve by molecular exploitation—recruitment of an older molecule, previously constrained for a different role, into a new functional complex." (Evolution of Hormone-Receptor Complexity by Molecular Exploitation Jamie T. Bridgham, Sean M. Carroll and Joseph W. Thornton*)*Science 7 April 2006: Vol. 312 no. 5770 pp. 97-101 DOI: 10.1126/science.1123348*

The Evolution of The Eye by Dawkins – an attempt at illustrating that evolution could produce an eye

In Richard Dawkins' article, 'Where'd You get those Peepers', he attempts to explain how the eye could have evolved 40 – 60 times independently of the dozens of unrelated species that also have supposedly evolved an eye. In the evolution model, the chains of life branch off making it impossible for species to share information. Therefore, if evolution is true, by Dawkins admission, the eye had to be re-invented a minimum of 40 times and could be as many as 60 times. Gradual evolution does not allow for enough time for a complex eye to develop once in a 3 billion year time span. A solution was needed to simplify this process so it could occur up to 60 times in the same

[6] So what? The intelligent design scientists disagree with the conclusions of these articles. They may be approved by some but by those who believe in evolution.

[7] This assumes an evolutionary explanation for genes. So extracting the essence of his abstract – he assumes evolution to "prove" evolution – circular reasoning. Anyway this sort of thing has not been demonstrated in actuality.

time period. Therefore, evolution needed a new explanation that simplifies the evolution of the eye. Dawkins praises two scientists named Nilsson and Pelger for solving this problem. They created a computer model that showed the evolution of the eye in a relatively short time span that would fit the evolution model.

Nilsson and Pelger followed the same pattern that all evolution science follows. Dawkins did not use direct quotes so we can't examine the psychology of their argument here. One of the primary tactics of arguing for evolution is to hide the astronomical odds against it by leading people to believe time and chance changes evolution into a simple process. We are to believe that it happens all the time and is a small miracle at best. Richard Dawkins is the master of simplistic reasoning. In Dawkins argument, he subtly guides the reader into believing the evolution of the eye is simple. If we see the enormous complexity that challenges this test, we will be alarmed at the evasion used to prove this experiment. However, Dawkins does admit "Nilsson and Pelger made no attempts to simulate the inner workings of cells." He also says, "They started their story after the invention of a single light-sensitive cell" and "They worked at the level of tissues…rather than the level of individual cells". In other words, this experiment evades anything that shows complexity and instead works with fully assembled parts.

From the onset, we can see that the experiment is being staged like tinker toys. To prove the eye evolved, we are not going to answer 'how', we are just going to assemble the pieces. Before any reader will accept this, we must first be convinced that the 'how' question is not important. Dawkins says, "We have to start somewhere", so we started after the 'invention' of the light-sensitive cell. Never mind the question as to who or how the technology of this cell was 'invented', the impression is that we don't want to be bored with details, so the scientists skipped the boring inner workings of the cell. As we can see, the key to this and most evolution arguments is dependent on conveying simplicity to the reader or listener. Once we are satisfied with their starting point, they can argue their point without objection. Nothing had to be proven because they have evaded the hardest questions that they cannot answer and still support evolution.

Dawkins continues, "The transparent layer was allowed to undergo localized random mutations of its refractive index. They then let the model deform itself at random, constrained only by the requirement that any change must be small and must be an improvement on what went before."

Take a moment to critically think about what has just been presented as 'evidence'. There are three major flaws with this 'experiment' that has been revealed in this one paragraph. 1. They have allowed the layer of transparent skin to undergo changes. They determine what is happening – not nature and not observed science. 2. They let the model take over the process and set the course of 'mutations'. 3. Probably the most important observation we can make here is that they (Nilsson and Pilger) set the constraints that evolutionary mutations must abide by. They created a model that was not allowed to fail. Change had to be gradual because that is what the evolutionary model

requires. Change was not allowed to harm evolution because a defective mutation is a failure of the species and would put evolution back to ground zero. A mutation does not have a second chance. Either mutation helps or harms. Evolutionists James Valentine, and Cathryn A. Campbell, wrote in their work, “Genetic Regulation and the Fossil Record,”

“Most mutations to structural genes are deleterious, and presumably most regulatory gene mutations are deleterious as well, but occasionally a mutation may enhance regulatory activity.”

Mutations are observed by science to be harmful. This book argues that they may on occasion be helpful, however, that is not the observation we see. Don’t overlook the wording. They are speculating that mutation may occasionally enhance, but it is not observed. Harmful mutations are frequently observed; helpful ones are not. If mutations are ‘usually deleterious (or harmful)’, then why was this possibility eliminated from the eye evolution experiment? I believe the answer is found in Richard Dawkins’ admission in his article that, “Unlike human designers, natural selection can't go downhill not even if there is a tempting higher hill on the other side of the valley”. Some will argue that only creationists accuse mutations of always being harmful, but consider this quote from Atomic Scientists:

"It is entirely in line with the accidental nature of mutations that extensive tests have agreed in showing the vast majority of them detrimental to the organism in its job of surviving and reproducing -- good ones are so rare we can consider them all bad." (Bulletin of the Atomic Scientists 11:331)

Mutations are frequently observed in science and are observed to be harmful because it is a loss of information or damaged information and not increased information or an addition of traits. Yet in this experiment that supposedly proves the eye evolves quickly to match the required 40-60 times it would have had to develop independently, evolutionists remove this primary enemy that evolution can’t get around. In essence, to prove evolution occurs without intelligent design, they provide an intelligently designed model to guide its behavior.

Dawkins continues, “The results were swift and decisive. And then, almost like a conjuring trick, a portion of this transparent filling condensed into a local, spherical subregion of higher refractive index.”

It is ironic that he would say that this appears like a conjuring trick. That is exactly what happens. The computer model is conjuring the evidence it was designed to show. It is not revealing any true evidence. The computer program is outputting only what it was written to project. Dawkins goes on to herald the fact that the evolved eye on the computer screen achieved the Mattiessen’s ratio perfectly. The Mattiessen’s ratio is the optimum value for ratio between the length of the lens and the radius. Once again, we should ask what has been proven? Is it by chance that an optimum lens was formed? Or could Nilsson and Pilger have constructed their computer program with knowledge

of the Mattiessen ratio that they wanted to 'prove'. Dawkins said, "Nilsson and Pelger's computer model homed in unerringly on Mattiessen's ratio." Did the computer home in on this, or is the program written to produce this ratio?

When I took programming, one of the first things we learned was the acronym 'GIGO', which stands for, 'Garbage In, Garbage Out'. In other words, the computer does not produce anything that was not designed into the program. If a computer outputs garbage, it isn't the computer at fault, but the programmer. The reverse is also true. If a computer outputs the 'Mattiessen's ratio', it was the programmer that instructed the computer. The computer is not capable of drawing any conclusions on its own. A computer can only follow sets of instructions given by the programmer.

At first glance, Richard Dawkins' defense of the evolution of the eye may seem plausible. But when you look closely, it is all smoke and mirrors. He does not point to anything that is supported by evidence. He uses basic psychology in his argument. He begins by ridiculing those who hold religious beliefs to put critics on the defensive. He follows up by establishing the authority of evolution and then directs us to those who are working within that box of authority. We then must believe the results – not based on the facts, but based on the 'reliable' experiments of evolutionists. Everything points away from critical thinking. We are being taught to depend on evolutionists to do the thinking and we just take the results at face value. In reality, we should be asking:

- Why did they avoid the inner workings of the cells?
- Why did they begin after the most complex, light sensitive cell was 'invented'?
- What does it prove to put all the ingredients into a pot and tell the computer how to assemble them?
- What would have happened if the model had not been 'constrained' to prevent failure?

It is a fact that Richard Dawkins can present a well -articulated argument for evolution. However, if we use critical thinking, we see the deceptive tactics behind his argument. He uses psychology to prepare us to be guided blindly as he carefully weaves us through the evidence he wants us to see while we bypass objections without even taking notice. Most true critical thinkers are those who don't blindly accept the assumptions surrounding evolution. Critical questions concerning evolution are seldom answered with facts. Intimidation is used as a more effective response. Labelling a question as 'religious in nature' is much easier than trying to explain why all the holes are being ignored by evolutionists.

The fallacies of Nilsson and Pelger

Nilsson and Pelger claimed to show how evolution could have produced the lens-type eye. If convincing, the article would be a key argument in demonstrating how Darwinian evolution could produce a complex system – such as the eye. In fact, Richard Dawkins has used the Nilsson and Pelger article for this very purpose.

David Berlinski's Critique of Nilsson and Pelger :

After first offering a detailed summary of the article's claims and calculations, Berlinski argued that the article's conclusions are both trivial and unsubstantiated. To highlight a few of the arguments:

1)He pointed out how simplified their calculation was – it ignores biological structure within the initial assumed patch (such as blood vessels, nerves or bones).

2)Nowhere in the paper are details of their key calculations given.

3)They only addressed morphological change of the eye, completely ignoring the necessary biochemical change.

4)Their calculations are based on 1% steps that are never expressed in terms of biological change. (Just how many years are in a 1% step?)

5)Nilsson and Pelger did not utilize selection in their calculations of eye evolution.

6)Berlinski points out the potentially high costs of developing an eye socket for the evolving eye – an issue completely ignored in the paper.

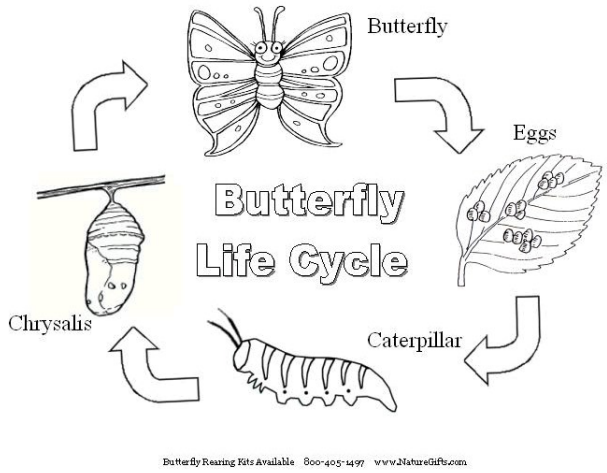
7)Nilsson and Pelger used selection pressure as a constant for 300,000 years, and never offered population figures to justify their figures.

8)Nilsson and Pelger never mentioned randomly occurring changes.

Problems – trilobite vision was virtually in existence at the beginning of life

Two lenses with different refractive indices -to enable it to see in sea water

The Spanner in the works of step –by step evolutionary change = the Life cycle of insects



Consider the step by step changes needed for the development of the caterpillar then "bingo!" it suddenly does an about face and becomes something completely different – a butterfly with wings.

Chewing mouth → proboscis

Green leaves → nectar

Multiple body segments → 3 body segments

Multiple legs → 6 legs

No wings → wings

The whole idea of vision is oversimplified by evolutionists

When presented with a visual scene, we have the perception that we see every part of that scene with equal clarity at all times. However, neuroscience has shown that this is emphatically not true, we constantly make saccadic eye movements that focus our high acuity vision to examine different parts of the visual field at any time. These eye movements shift the fovea, and visual attention, displacing the retinal image of the visual scene and producing a blurred sweep of visual information during the saccade movement itself. And yet with all this movement and displacement, our brain computes the visual information to produce the illusion of a unified, clear visual field.

It is the brain that sees – the brain with its 1 trillion cells and 100 trillion connections.

The circuitry which analyses and then integrates the information received from the eyes is incredibly complex. It is at least as complex as athe most advanced computers if not more. One could have the most magnificent eye but without a brain – the m ost complex piece of matter in the universe.

Diagram of vision circuitry (at school) – there are about 30 different brain centres that are connected in an incredibly complex manner – that are involved in the creation of vision.

Evolutionists deliberately understate the complexity of living systems!

Eg Purkinje Cells in the Cerebellum – "Parallel fibers pass orthogonally through the Purkinje neuron's dendritic arbor, with up to 200,000 parallel fibers[2] forming a Granule-cell-Purkinje-cell ***synapse with a single Purkinje cell." – a single cell is hard wired to 200000 other cells directly – this is mind boggling.***

What man made circuits have that sort of complexity?

SPECIFIED COMPLEXITY

Specified complexity is an argument proposed by William Dembski and used by him and others to promote intelligent design. According to Dembski, the concept is intended to formalize a property that singles out patterns that are both specified and complex. Dembski states that specified complexity is a reliable marker of design by an intelligent agent, a central tenet to intelligent design which Dembski argues for in opposition to modern evolutionary theory. The term "specified complexity" was originally coined by origin of life researcher Leslie Orgel to denote what distinguishes living things from non-living things:

In brief, living organisms are distinguished by their *specified* complexity. Crystals are usually taken as the prototypes of simple well-specified structures, because they consist of a very large number of identical molecules packed together in a uniform way. Lumps of granite or random mixtures of polymers are examples of structures that are complex but not specified. The crystals fail to qualify as living because they lack complexity; the mixtures of polymers fail to qualify because they lack specificity.

The term was later employed by physicist Paul Davies in a similar manner:

Living organisms are mysterious not for their complexity per se, but for their tightly specified complexity' They have particular functions that they faithfully fulfil.

For example cells contain 30 000 genes → 30 000 unique proteins → each protein will have a unique and critical function

"*The concept of specified complexity is widely regarded as mathematically unsound and has not been the basis for further independent work in information theory, the theory of complex systems, or biology*.[1][2][3] [Wikipedia] "

The Wikipedia article does not explain why this is so. It simply asserts it. Well it does lists a couple of articles in its Bibliography.

But how can they say that? Truth is that it is easy to say but much harder to back it up!

Consider:

The probability of forming a single given 300 amino acid long protein (say an enzyme like carboxypeptidase) randomly is $(1/20)^{300}$ or 1 chance in 2.04×10^{390}

The probability that an average-size protein molecule of the smallest theoretically possible living thing would happen to contain only left-handed amino acids is, therefore, 1 in 10^{123},

It has to be kept in mind here that every cell contains approximately one billion protein molecules. The different proteins (about 30000) have a large number of important functions. Some constitute the building blocks for building the cell while other functions as enzymes catalyzing thousands of specific chemical reactions. The proteins within the cell are constantly degraded and resynthesized. The number of amino acids-the building blocks making up all proteins-may in a single protein range from about 50 to several thousands, forming long, folded chains

These numbers are arrived at using simple probability and permutation theory; so much for being mathematically unsound. They are only unsound if you want them to be but if you want to be reasonable they must be accepted.

Hoyle calculated the probability of his "simple" single-celled organism coming into existence by chance to be 1 in $10^{57,800}$!

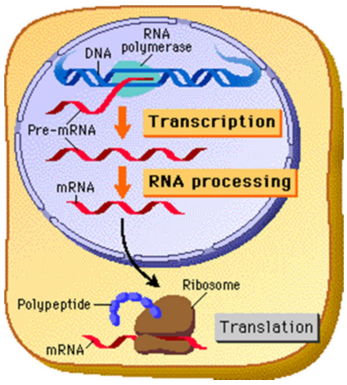
Microbiological Conundrums!!!

DNA ➔ mRNA → Polypeptide (protein) but these transformations themselves require the existence of many proteins as enzymes and as chaperones and as nucleosomes which in turn are made by the very process that brings them into existence.

Which comes first protein or DNA?

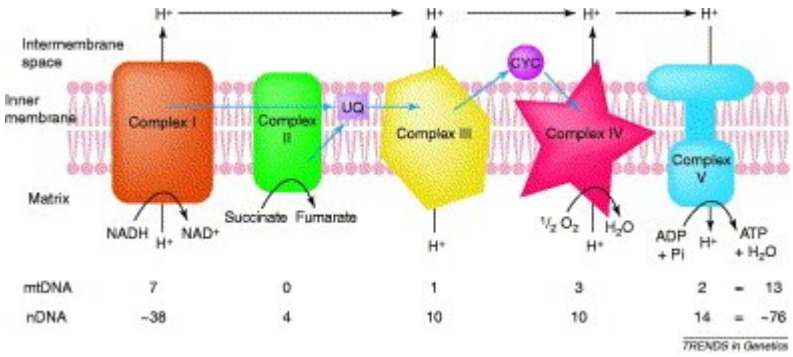
Protein Difficulties

Where did mRNA editing come from? How why? Beyond belief!!



1997 Nobel Prize discovered that somehow proteins know what address they will be operating at in the cell? What the? How do kinesin molecules know where to take protein molecules that have been packaged inside a vesicle along microtubules? It beggars belief!!!

How does NADH-UQ reductase just happen to be in the mitochondrion in the electron transport chain and in particular the first molecule in that chain of molecules; ready to act on NADH. Fluke or design?



TRUTH IS NOT DETERMINED BY SCIENTIFIC CONSENSUS

Scientific consensus is the collective judgment, position, and opinion of the community of scientists in a particular field of study. Consensus implies general agreement, though not necessarily unanimity. Scientific consensus is not by itself a scientific argument, and it is not part of the scientific method. The argument that a majority of scientists believe in a certain idea has never been a good indicator of the veracity of a theory or idea in science.

RIDICULED DISCOVERERS, VINDICATED MAVERICKS

Ideas originally rejected then later accepted

In science, pursuing revolutionary advancements can be like searching for diamonds hidden in sewage. It's a shame that the realms of questionable ideas contain "diamonds" of great value. This makes the judging crazy theories far more difficult. If crazy discoveries were always bogus, then we'd have good reason to reject them without investigation. However, since the diamonds exist, we must distrust our first impressions. Sometimes the "obvious" craziness turns out to be a genuine cutting-edge discovery. As with the little child questioning the emperor's clothing, sometimes the entire scientific community is misguided and incompetent. Sometimes only the lone voice of the maverick scientist is telling the truth.

- "Men show their character in nothing more clearly than by what they think laughable." –J. W. Goethe

- "When a true genius appears in this world, you may know him by this sign, that the dunces are all in confederacy against him." – Jonathan Swift

- "Concepts which have proved useful for ordering things easily assume so great an authority over us, that we forget their terrestrial origin and accept them as unalterable facts. They then become ndians as 'conceptual necessities,' etc. The road of scientific progress is frequently blocked for long periods by such errors." – Einstein

- "The mind likes a strange idea as little as the body likes a strange protein and resists it with similar energy. It would not perhaps be too fanciful to say that a new idea is the most quickly acting antigen known to science. If we watch ourselves honestly we shall often find that we have begun to argue against a new idea even before it has been completely stated." – Wilfred Trotter, 1941

“The study of history is a powerful antidote to contemporary arrogance. It is humbling to discover how many of our glib assumptions, which seem to us novel and plausible, have been tested before, not once but many times and in innumerable guises; and discovered to be, at great human cost, wholly false.” –Paul Johnson

Below is a list of scientists who were reviled for their “crackpottery”, only to be later proven correct. Today’s science texts are dishonest to the extent that they hide these huge mistakes made by the scientific community. They rarely discuss the acts of intellectual suppression which were directed at the following researchers by their colleagues. This is very telling.

- Arrhenius (ion chemistry)
- Alfven, Hans (galaxy-scale plasma dynamics)
- Baird, John L. (television camera)
- Bakker, Robert (fast, warm-blooded dinosaurs)
- Bardeen & Brattain (transistor)
- Bose, Satyendra (Bose–Einstein statistics & the phenomena which became known as Bose-Einstein condensate)
- Bretz J Harlen (ice age geology)
- Chandrasekhar, Subrahmanyan (black holes in 1930)
- Chladni, Ernst (meteorites in 1800)
- Crick & Watson (DNA)
- Doppler, Christian (optical Doppler effect)
- Folk, Robert L. (existence and importance of nano-bacteria)
- Galvani (bioelectricity)
- Harvey, William (circulation of blood, 1628)
- Krebs, Hans (ATP energy, Krebs cycle)
- Copernicus & Galileo (heliocentric solar system)
- Gauss, Karl F. (non-Euclidean geometery)
- Binning/Roher/Gimzewski (scanning-tunneling microscope)
- Goddard, Robert (rocket-powered space ships)
- Goethe (Land colour theory)
- Gold, Thomas (deep non-biological petroleum deposits)

- Gold, Thomas (deep mine bacteria)
- Lister, J (sterilizing)
- T Maiman (Laser)
- Margulis, Lynn (endosymbiotic organelles)
- Mayer, Julius R. (The Law of Conservation of Energy)
- Marshall, B (ulcers caused by bacteria, helicobacter pylori)
- McClintlock, Barbara (mobile genetic elements, “jumping genes”, transposons)
- Mendel, Gregor (Laws of Inheritance)
- Newlands, J. (pre-Mendeleev periodic table)
- Newton, Sir Isaac (1st Law of Motion)
- Nott, J. C. (mosquitos xmit Yellow Fever)
- Nottebohm, F. (neurogenesis: brains can grow neurons)
- Ohm, George S. (Ohm’s Law)
- Ovshinsky, Stanford R. (amorphous semiconductor devices)
- Pasteur, Louis (germ theory of disease)
- Prusiner, Stanley (existence of prions, 1982)
- Rous, Peyton (viruses cause cancer)
- Semmelweis, I. (surgeons wash hands, puerperal fever)
- Tesla, Nikola (Earth electrical resonance, “Schumann” resonance)
- Tesla, Nikola (brushless AC motor)
- J H van’t Hoff (molecules are 3D)
- Warren, Warren S (flaw in MRI theory)
- Wegener, Alfred (continental drift)
- Wright, Wilbur & Orville (flying machines)
- Zwicky, Fritz (existence of dark matter, 1933)
- Zweig, George (quark theory)

Some ridiculed ideas which had no single supporter:

- Ball lightning (lacking a theory, it was long dismissed as retinal afterimages)

- Catastrophism (ridicule of rapid Earth changes, asteroid mass extinctions)
- Child abuse (before 1950, doctors were mystified by “spontaneous” childhood bruising)
- Cooperation or altruism between animals (versus Evolution’s required competition)
- Instantaneous meteor noises (evidence rejected because sound should be delayed by distance)
- Mind-body connection (psychoneuroimmunology, doctors ridiculed any emotional basis for disease)
- Perceptrons (later vindicated as Neural Networks)
- Permanent magnet levitation (“Levitron” shouldn’t have worked)

Ideas at first accepted then proven wrong

1. Lamarck's Theory of Inheritance
2. The Discovery of Vulcan

Vulcan was a planet that nineteenth century scientists believed to exist somewhere between Mercury and the Sun. The mathematician Urbain Jean Joseph Le Verrier first proposed its existence after he and many other scientists were unable to explain certain peculiarities about Mercury’s orbit. Scientists like Le Verrier argued that this had to be caused by some object, like a small planet or moon, acting as a gravitational force. La Verrier called his hypothetical planet Vulcan, after the Roman god of fire. Soon, amateur astronomers around Europe, eager to be a part of a scientific discovery, contacted Le Verrier and claimed to have witnessed the mysterious planet making its transit around the Sun. For years afterward, Vulcan sightings continued to pour in from around the globe, and when La Verrier died in 1877, he was still regarded as having discovered a new planet in the solar system.

3. Spontaneous Generation

Spontaneous generation or equivocal generation is an obsolete principle regarding the origin of life from inanimate matter, which held that this process was a commonplace and everyday occurrence, as distinguished from univocal generation, or reproduction from parent(s). The hypothesis was synthesized by Aristotle,[1] who compiled and expanded the work of prior natural philosophers and the various ancient explanations of the appearance of organisms; it held sway for two millennia. It is generally accepted to have been ultimately disproven in the 19th century by the experiments of Louis Pasteur, expanding upon the experiments of other scientists before him (such as Francesco Redi who had performed similar experiments in the 17th century). Ultimately, it was succeeded by germ theory and cell theory.

4. The Expanding Earth

Our modern understanding of the interior and behaviours of the Earth is strongly based around plate tectonics and the concept of subduction. But before this idea was widely accepted in the late 20th century, a good number of scientists subscribed to the much more fantastical theory that the Earth was forever increasing in volume.

5. Phlogiston Theory

First expressed by Johan Joachim Becher in 1667, phlogiston theory is the idea that all combustible objects—that is, anything that can catch fire—contain a special element called phlogiston that is released during burning, and which makes the whole process possible. In its traditional form, phlogiston was said to be without colour, taste, or odour, and was only made visible when a flammable object, like a tree or a pile of leaves, caught fire. Once it was burned and all its phlogiston released, the object was said to once again exist in its true form, known as a "calx." Beyond basic combustion, the theory also sought to explain chemical processes like the rusting of metals, and was even used as a means of understanding breathing, as pure oxygen was described as "dephlogistated air."

6. The Martian Canals

The Martian canals were a network of gullies and ravines that 19th century scientist mistakenly believed to exist on the red planet. The canals were first "discovered" in 1877 by Italian astronomer Giovanni Schiaparelli. After other stargazers corroborated his claim, the canals became something of a phenomenon. Scientists drew detailed maps tracing their paths, and soon wild speculation began on their possible origins and use. Perhaps the most absurd theory came from Percival Lowell, a mathematician and astronomer who jumped to the bizarre conclusion that the canals were a sophisticated irrigation system developed by an unknown intelligent species.

How it was Proven Wrong:

Quite unspectacularly, the Martian canals were only proven to be a myth with the advent of greater telescopes and imaging technology. It turned out that what looked like canals was in fact an optical illusion caused by streaks of dust blown across the Martian surface by heavy winds. Several scientists had proposed a similar theory in the early 1900s, but it was only proven correct in the 1960s when the first unmanned spacecraft made flybys over Mars and took pictures of its surface.

7. Luminiferous Aether

The aether, also known as the ether, was a mysterious substance that was long believed to be the means through which light was transmitted through the universe. Philosophers as far back as the Greeks had believed that light required a delivery system, a means through which it became visible, and this idea managed to persist all the way through to the nineteenth century. If correct, the theory would have redefined our entire understanding of physics. Most notably, if the aether were a physical substance that could exist even in a vacuum, then even deep space could be more easily measured and quantified. Experiments often contradicted the theory of the aether, but by the 1700s it had become so widespread that its existence was assumed to be a given. Later, when the

idea was abandoned, physicist Albert Michelson referred to luminiferous aether as “one of the grandest generalizations in modern science.”

8. The Blank Slate Theory

One of the oldest and most controversial theories in psychology and philosophy is the theory of the blank slate, or tabula rasa, which argues that people are born with no built-in personality traits or proclivities. Proponents of the theory, which began with the work of Aristotle and was expressed by everyone from St. Thomas Aquinas to the empiricist philosopher John Locke, insisted that all mental content was the result of experience and education.

9. Phrenology

Although it is now regarded as nothing more than a pseudoscience, in its day phrenology was one of the most popular and well-studied branches of neuroscience. In short, proponents of phrenology believed that individual character traits, whether intelligence, aggression, or an ear for music, could all be localized to very specific parts of the brain. According to phrenologists, the larger each one of these parts of a person’s brain was, the more likely they were to behave in a certain way. With this in mind, practitioners would often study the size and shape of subjects’ heads in order to determine what kind of personality they might have. Detailed maps of the supposed 27 different areas of the brain were created, and a person who had a particularly large bump on their skull in the area for, say, the sense of colors, would be assumed to have a proclivity for painting.

10. Einstein’s Static Universe

Prior to scientists embracing the notion that the universe was created as the result of the Big Bang, it was commonly believed that the size of the universe was an unchanging constant—it had always been the size it was, and always would be. The idea stated that that the total volume of the universe was effectively fixed, and that the whole construct operated as a closed system. The theory found its biggest adherent in Albert Einstein—the Static Universe is often known as “Einstein’s Universe”—who argued in favor of it and even calculated it into his theory of general relativity.

How it was Proven Wrong:

The theory of a static universe was problematic from the start. First of all, a finite universe could theoretically become so dense that it would collapse into a giant black hole, a problem Einstein compensated for with his principle of the “cosmological constant.” Still, the final nail in the coffin for the idea was Edwin Hubble’s discovery of the relationship between red shift—the way the color of heavenly bodies change as they move away from us—and distance, which showed that the universe was indeed expanding. Einstein would subsequently abandon his model, and would later refer to it as the “biggest blunder” of his career. Still, like all cosmological ideas, the expanding universe is just a theory, and a small group of scientists today still subscribe to the old static model.

11. Fleischmann and Pons’s Cold Fusion

While the conditions required to create nuclear energy usually require extreme temperatures—think of the processes that power the sun—the theory of cold fusion states that such a reaction is possible at room temperature. It's a deceivingly simple concept, but the implications are spectacular: if a nuclear reaction could occur at room temperature, then an abundance of energy could be created without the dangerous waste that results from nuclear power plants. This groundbreaking theory briefly seemed to have become a reality in 1989, when the electro-chemists Martin Fleischmann and Stanley Pons published experimental results suggesting that they had achieved cold fusion—and the precious "excess energy" it was hoped to produce—in an experiment where an electric current was run through seawater and a metal called Palladium. The response to Pons and Fleischmann's claims by the media and the scientific community was overwhelming. The experiments were hailed as a turning point in science, and it was briefly believed that with cold fusion energy would be cheap, clean, and abundant.

Dating Methods

Evolution & Creation

Written & Compiled by Peter Schwartzkopff

Contents

INTRODUCTION

A majority[8] of people[9] accept the current old-earth age estimate of around 4.6 billion years. This age is obtained from radiometric dating and is assumed by evolutionists to provide a sufficiently long time-frame for Darwinian evolution. It is claimed by some that an old earth supports evolutionary theory and by implication removes the need for biblical creation. Some claim Genesis in particular, and the Bible in general looks mythical if indeed the earth is so ancient because the Biblical record clearly suggests a 6000-year time period after the events of Genesis chapter 1. Indeed, one evolutionist, David H. Bailey, claims:

"The general picture of a 4.54-billion-year-old earth, with fossils spanning many millions of years, is well beyond any reasonable doubt. Indeed, the young-earth worldview that the early is only a few thousand years old has not been scientifically defensible for at least 50 years. Such a view is no more credible at this point in time than is the ancient cosmological picture of the sun, planets and stars revolving around the earth at heights of a few thousand feet -- both reckonings are off by factors of millions and billions from very-well-established scientific findings.[10]"

We are left therefore with a stark choice between two competing explanations of earth's history. In the mind of the evolutionist the debate is already won – but has it really been? Are the pillars upon which their conclusions sit so solid?

The Real Battleground

In this debate concerning origins the biggest battlefield is that of the dating of events in earth's history. Evolutionists love to spruke the "millions of years" mantra. David Attenborough, for example, produces beautiful documentaries which are liberally sown with references to "450 million years ago,", "100 million years ago" and so on. The figures are tossed around like confetti at a wedding. They are never questioned nor ever explained. They verge on propaganda that relies on the Goebbel's principles[11].

Summary of Argument

- *Sedimentary rock cannot be dated directly.*

---

[8] Most people wouldn't understand the mathematics involved but are quite prepared for whatever reason to accept that number.

[9]

2 David H. Bailey 31 Mar 2013 http://www.sciencemeetsreligion.org/evolution/radiometric-dating.php

[11] Goebbel's Rule 14 states that propaganda must label events and people with distinctive phrases or slogans.

a. They must evoke desired responses which the audience previously possesses
b. They must be capable of being easily learned
c. They must be utilized again and again, but only in appropriate situations
d. They must be boomerang-proof

The mentioning of "millions of years" obeys these principles

- *Scientists use the "age" of the bedrock (usually igneous) to determine when the first sedimentary rock was laid.*
- *The calculated age of the bedrock is then divided up amongst the overlying sedimentary layers.*
- *Fossils are then dated by the type of rock in which they are found. And more usually the rock is dated by the fossils themselves.*
- *The bedrock is dated using the mathematics of radioactive decay which centres on the equation* $D = D_0 + N(t)\,(e^{\lambda t} - 1)$
- *It is assumed that the rate of decomposition has always remained constant - absolutely constant, the rock crystal being analysed is not contaminated by infusion of excess end decay product,,[12] the rock crystal contained no end product when it was formed, and no leaching of the parent element out of the rock sample occurred.*
- *However none of these assumptions can be guaranteed as true.*
- *This throws a lot of doubt on the calculated ages. Radiometric Dating throws up hard to explain dates, and age estimates which are obviously wrong or contradictory. These present no problems to evolutionary scientists as they are usually ignored and rejected as anomalous.*
- *This is particularly true in radiocarbon dating where it is assumed that the* C^{12}/C^{14} *ratio has been constant through time but in the time since it was first used[13] this has been shown to not be the case.*
- *Recent research has produced data which rejects the idea the idea of constant decay rates. (This if it is true puts a knife into the heart of all radiometric dating techniques)*
- *As a consequence evolutionary scientists have sought better techniques which do not suffer from these faults[14].*
- *Fission track dating is, therefore, seen as a saviour of radiometric dating.*
- *But again it has been realised by scientists that the fission track age does not allow them to determine the age of a rock (unless this rock cooled very rapidly, e.g. during volcanic eruptions or at impact events), but only the age of the rock cooling through a certain temperature range. Another problem is that fission tracks fade at high temperatures and therefore the temperature history of the rock is required but never really available.*
- *Scientists have then turned to what is called isochron dating.*
- *Isochron Dating is another common technique of radiometric dating and is applied to date certain events, such as crystallization, metamorphism, shock events, and differentiation of precursor melts, in the history of rocks. Geochronologists perform a number of radioactive age determinations on a group of samples from the rock under investigation, hoping to pin-*

---

[12] Called the daughter isotope

[13] W.F.Libby first came up with his methods in 1947.

[14] The replacement for Radiocarbon dating as a measure of small time periods is Luminescence dating. It dates minerals instead of organic material. It is prone to error due to variation of the environment eg with optically stimulated luminescence (OSL) In addition to the problems arising from the aforementioned variability, OSL dating suffers from potential problems in the completeness of the zeroing of the signal and the possible incorporation of sediments of different ages.

point a pattern that will enable the calculation of the desired 'true' age. If these multiple isotopic analyses of various rock samples, and minerals within those rock samples, are from the same geological unit, then geochronologists can produce an isochron – a graph showing the ratio of daughter to parent where the slope of the line can be used to determine the age of these homogeneous rock samples This method is supposed to allow some of the more uncertain assumptions of the normal age calculating method to be circumvented and so permit a higher degree of confidence in the resulting 'age' estimate.

- *One of the weaknesses of this method is that the samples cannot be identical yet one of the important conditions is that the samples must be homogeneous[15] otherwise a line cannot be produced. This means the technique walks a very fine line or maybe a fanciful line.*
- *Scientists are driven by their world view and this affects which dates they accept and those they reject. They tend to reject anything a creationists has to say no matter how qualified they are.*
    - *By the geologic column coelacanth was dated at 70-100 million years yet it still exists today.*
    - *"The Wollemi Pine was known from fossil records and presumed extinct until it was discovered in 1994 by a bushwalker in the Wollemi National Park just outside Australia's largest city, Sydney. Dubbed the botanical find of the century, the Wollemi Pine is now the focus of extensive research to conserve this* ***ancient***[16] *species"*[17]
    - *In recent times dinosaur fossils have been found with organic tissue including blood cells.*[18]

Dating method	Material dated	Age range dated
Carbon-14 to nitrogen-14 (radiocarbon)	Organic remains, archaeological artefacts	Up to 60,000 years ago
Luminescence	Tephra, loess, lake sediments	Up to 100,000 years ago
Fission track	Tephra	10,000 to 400 million years ago
Potassium-40 to argon-40	Volcanic rocks	20,000 to over 5 billion years ago
Uranium-238 to lead-206	Volcanic rocks	1 million to over 5 billion years ago

[15] homogeneous adj.

1. Of the same or similar nature or kind: "a tight-knit, homogeneous society" (James Fallows).
2. **Uniform in structure or composition throughout.**
3. Mathematics Consisting of terms of the same degree or elements of the same dimension.

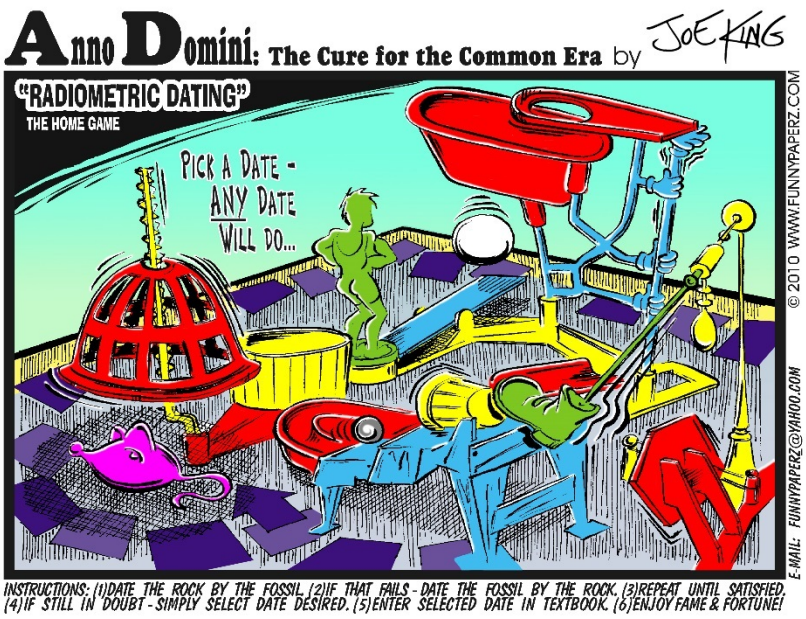
[16] Note how the article refers to it as an ancient species. This presumes evolutionary ages.

[17] http://www.wollemipine.com/faq.php

[18] http://www.science20.com/curiousity_killed_fruit_fly/bones_contention_dinosaur_cells_survived_millions_years_trapped_bone-95449

	Dates (years before present)	Milestone	Dating Methods
	4-7 million	Human & chimp ancestors diverge	Molecular genetic clock, Argon
	By 4 million	Bipedal walking becomes well developed	Argon
	2.6 million	Oldest stone toolmaking	Argon, Paleomagnetic
	1.8 million	*Homo erectus* expands out of Africa	Argon, Paleomagnetic
	800,000 – 200,000	Rapid brain expansion	Argon & Uranium-series Paleomagnetic
	250, 000 – 30,000	Neanderthals emerge, then become extinct; *Homo sapiens* emerges in Africa, then expands to other continents; symbolic culture begins to flourish	Thermoluminescence , Electron spin resonance, Carbon-14, Molecular genetic clock
	12,000 – 10,000	Origins of agriculture	Carbon-14 dating
	4,500	Origins of writing, state societies, civilization: Sumer & Egypt	Carbon-14 dating

Suggested Evolutionary Timeline



The Big Question

So, then the question has to be asked "How then are these fossils dated?" The simple answer is that scientists who are evolutionists – believers in a non -Biblical explanation of the earth – try to date the bedrock – the igneous or metamorphic rocks that are beneath the sedimentary rock layers. Once these time periods are calculated that time is divided between all the supposed layers in the geologic column.

When it comes to the dating of fossils any self -respecting palaeontologist would admit that any fossil will have been found in sedimentary rock. However there are no dating techniques extant that allow scientists to date fossils in "old" sedimentary rocks.

The Geologic Column

The geologic column is a diagram supposedly representing all the sedimentary rock formations from history. The law of stratigraphy is used to say that each succeeding layer is younger than the one preceding it. Using radiometric dates for bedrock these rock layers are assigned ages of time that match the earth's geological history. It was created by a man named James Hutton in 1795, and was worked on more by Charles Lyell in 1830. There are supposedly a number of shorter time periods which fit into the four eras in the geologic column. Effectively these eras begin, according to evolutionists, about 570 million years ago.

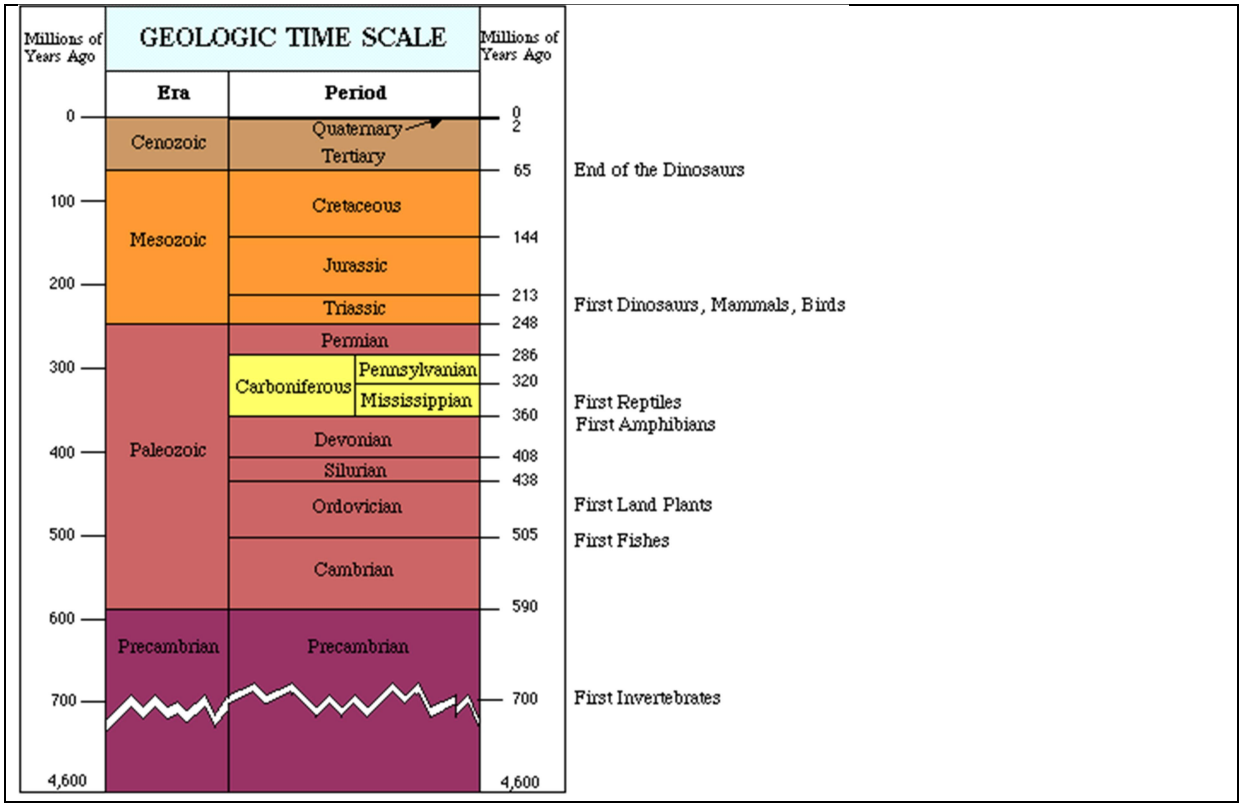
The geological column attempts to create a chronology for the layers of sedimentary rock that blanket the earth[19]. These rock strata have been interpreted by secular scientists to represent the history of life on earth over more than 600 million years. Except where erosion and uplift has removed these layers, there is not one square inch on earth not covered in thick sedimentary

[19] The Adelaide Rift Complex is a great belt of sediments, deposited in a depression during a time of lithospheric stretching in an arc approximately a thousand kilometres long and several hundred kilometres wide. The thickest parts of the belt are approximately 24,000 m thick. Limestones, shales, and sandstones indicate a predominantly marine environment.

deposits. It is said of the geological column that it can be traced across entire continents and correlated with similar layers on other continents.

Supporters of the geologic column (and evolution) say that each period had creatures that evolved into today's life forms. Those creatures eventually died and became fossils. The evolutionists then insist that the fossils that are found in each of these layers become indicators of the age of the rock. In the same way, the age of the fossils is obtained by establishing what part of the geologic column they were found in.
In so doing that, they must assume that they will find only certain fossils in a certain rock layers. Most fossils are dated by the rocks they are in, and most rocks are dated by the types of fossils they have. **This is a very clear case of circular reasoning!**
This relative dating assumes uniformitarianism. So we find secular scientists assuming uniformitarianism to prove uniformitarianism. In other words, evolutionists assume that no world-wide flood occurred to prove that there was no Flood! **That is circular reasoning.**

Simply put, the geological column has been misinterpreted due to a failure of the scientific community to recognize the occurrence of the global flood[20], and there is evidence these formations are relatively young. The flood strata do not represent a history of millions of years of accumulation, but is an obvious record of a world-wide devastating catastrophe that did not allow creatures to survive naturally.



The Geologic Column is a neat little theory but things are not quite what they seem!

[20] Genesis 6,7,8

Misconception #1: The geologic column and the positions of fossils within the geologic column provide proof of amoeba-to-man evolution.

- All the animal phyla, including chordate fish, are now known as fossils in the Cambrian System. No ancestral forms can be found for the protozoans, arthropods, brachiopods, molluscs, bryozoans, cnidariians, sponges, annelids, echinoderms or chordates. These phyla appear in the fossil record fully formed and distinct, in better agreement with the concept of "multiple, abrupt beginnings" (creation) than with the notion of "descent from a common ancestor" (evolution).

Misconception #2: The strata systems of the geologic column are worldwide in their occurrence with each strata system being present below any point on the earth's surface

- The notion that the earth's crust has on "onion skin" structure with successive layers containing all strata systems distributed on a global scale is not according to the facts.
- Data from continents and ocean basins show that the ten systems are poorly represented on a global scale: approximately 77% of the earth's surface area on land and under the sea has seven or more (70% or more) of the strata systems missing beneath;
- 94% of the earth's surface has three or more systems missing beneath;
- an estimated 99.6% has at least one missing system.
- Only a few locations on earth (about 0.4% of its area) have been described with the succession of the ten systems beneath (west Nepal, west Bolivia, and central Poland).
- Even where the ten systems may be present, geologists recognize individual systems to be incomplete.

The entire geologic column, composed of complete strata systems, exists only in the diagrams drawn by geologists!

Misconception #3: Strata systems always occur in the order required by the geologic column

- Hundreds of locations are known where the order of the systems identified by geologists does not match the order of the geologic column.
- Strata systems are believed in some places to be inverted, repeated, or inserted where they do not belong. Overturning, overthrust faulting, or landsliding are frequently maintained as disrupting the order.
- In some locations such structural changes can be supported by physical evidence while elsewhere physical evidence of the disruption may be lacking and special pleading may be required using fossils or radiometric dating.

Misconception #4: It is often suggested that the sedimentary rock that exists on earth was created by normal geological events like the flow of rivers.

The enormity of the sedimentary rock layers seems to argue against this idea. As mentioned previously the thickest layers in the Adelaide Geosyncline are some 24km thick. Such a depth of rock does not fit well with the idea of a gentle river dropping its sedimentary load at its mouth in a delta[21].

A sedimentary layer often spans hundreds of thousands of square kilometres. (River deltas, where sediment thicknesses grow most rapidly today, are a tiny fraction of that area.) Liquefaction[22] during a global flood would account for the vast expanse of these thick layers. Current processes and eons of time do not.

One thick, extensive sedimentary layer has remarkable purity. The St. Peter sandstone, spanning about 600,000 square kilometres in the central United States, is composed of almost pure quartz, similar to sand on a white beach. It is hard to imagine how any geologic process, other than global liquefaction, could achieve this degree of purity over such a wide area. Most normal processes involve mixing, which destroys purity.

The Basics of Radiometric Dating

Nevertheless, it is worth examining the reasoning behind the techniques used to date these rock layers. The simplest form of age computation involves using an equation which describes radioactive decay:

$$\mathbf{D = D_0 + N(t)\,(e^{\lambda t} - 1)}$$

where

t is age of the sample,

D is number of atoms of the daughter isotope in the sample,

D_0 is number of atoms of the daughter isotope in the original composition,

N is number of atoms of the parent isotope in the sample at time t (the present), given by $N(t) = N_o e\text{-}\lambda t$,

and

λ is the decay constant of the parent isotope, equal to the inverse of the radioactive half-life of the parent isotope times the natural logarithm of 2.

[21] A delta is a roughly triangular pile of sediment up to thousands of square kilometres in area which builds up where a river enters an ocean or a lake.

[22] In Junior High School an activity is often done in Science classes to imitate the laying down of sediments and how it is that definite layers can be created. Soil is placed in a measuring cylinder, water is added, the mixture is shaken, and then allowed to settle. This is akin to the process suggested by a global flood.

The equation is most conveniently expressed in terms of the measured quantity N(t) rather than the constant initial value N_o.

Isotopic Age Dating

Method	Parent/Daughter Isotopes	Half-Lives	Materials Dated	Age Dating Range
Carbon (C)/Nitrogen (N)	C-14/N-14	5,730 yrs.	Shells, limestone, organic materials	100-50,000 yrs.
Potassium (K)/Argon (Ar)	K-40/Ar-40	1.3 billion yrs.	Biotite, whole volcanic rock	100,000-4.5 billion yrs.
Rubidium (Rb)/Strontium (Sr)	Rb-87/Sr-87	47 billion yrs.	Micas	10 million-4.5 billion+ yrs.
Uranium (U)/Lead (Pb)	U-238/Pb-206	4.5 billion yrs.	Zircon	10 million-4.5 billion+ yrs.
Uranium (U)/Lead (Pb)	U-235/Pb-207	710 million yrs.	Zircon	10 million-4.5 billion+ yrs.

Analysis of Radiometric Dating

Radiometric rock dating, the methodology of determining the date of formation of a rock sample by the well-established rate of decay of the isotopes contained, depends on accurate determination of the starting points; the original concentrations of the isotopes. Many methods of estimating these beginning concentrations have been proposed, but all rest on tenuous assumptions which have been limited their acceptance.

Using the equation $\mathbf{N(t) = N_o e^{-\lambda t}}$,

We can obtain the equation $\boldsymbol{\tau_{½} = \ln 2/l}$

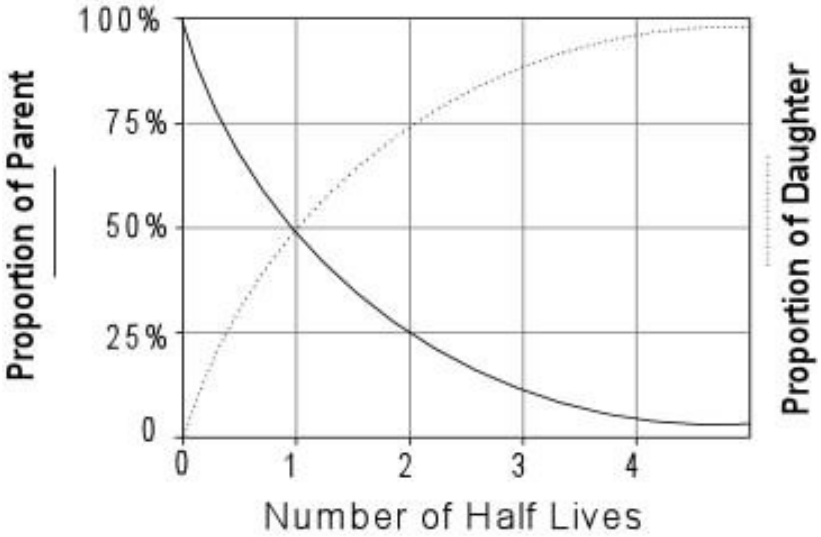
Where $\boldsymbol{\tau ½}$ is the half-life of the radioactive element.

Knowledge of $\boldsymbol{\tau ½}$ or $\boldsymbol{\lambda}$ allows us to calculate the age of the material if we knew the amount of original isotope and its amount today. This can only be done for ^{14}C, since we know N_0 from the atmospheric ratio, assumed to be constant through time[23] [24] [25]. For other systems, we have to proceed further.

[23] Libby's assumption that the concentration of carbon-14 in the atmosphere was constant through time has subsequently been proved wrong. Discrepancies were noted between carbon-14 dates for Egyptian tomb artefacts and construction dates recorded in early local texts. Radiocarbon dates from tree rings (see dendrochronology) showed that material before 1000 BC had been exposed to greater concentrations of carbon-14. Now radiocarbon dates are calibrated against calendar dates obtained from tree rings, or, for earlier periods, against uranium/thorium dates obtained from coral. The carbon-14 content is determined by counting beta particles with either a proportional gas or a liquid scintillation counter for a period of time. A new advance, accelerator mass spectrometry, requires only tiny samples and counts the atoms of carbon-14 directly, disregarding their decay.

[24] The above-ground nuclear tests that occurred in several countries between 1955 and 1980 dramatically increased the amount of carbon-14 in the atmosphere and subsequently in the biosphere; after the tests ended, the atmospheric concentration of the isotope began to decrease.

One side-effect of the change in atmospheric carbon-14 is that this has enabled some options for determining the birth year of an individual, in particular, the amount of carbon-14 in tooth enamel, or the carbon-14 concentration in the lens of the eye.



Potential Problems for Generic Dating

Some assumptions have been made in the discussion of generic datin, for the sake of keeping the computation simple. Such assumptions will not always be accurate in the real world. These include:

- The amount of daughter isotope at the time of formation of the sample is zero (or known independently and can be compensated for).
- No parent isotope or daughter isotope has entered or left the sample since its time of formation.

---

[25] Carbon-14 is produced in the upper layers of the troposphere and the stratosphere by thermal neutrons absorbed by nitrogen atoms. When cosmic rays enter the atmosphere, they undergo various transformations, including the production of neutrons. The resulting neutrons (1n) participate in the following reaction:

$$^{1}n + {}^{14}N \rightarrow {}^{14}C + {}^{1}p$$

The highest rate of carbon-14 production takes place at altitudes of 9 to 15 km (30,000 to 50,000 ft) and at high geomagnetic latitudes.

As of 2008, the rate of carbon-14 production was poorly known – while the reaction can be modelled or the current concentrations and the global carbon budget can be used to backtrack, attempts to directly measure the production rate had not agreed with these models very well. Production rates vary because of changes to the cosmic ray flux incident, such as supernovae, and due to variations in the Earth's magnetic field. The latter can create significant variations in carbon-14 production rates, although the changes of the carbon cycle can make these effects difficult to tease out.

The natural atmospheric yield of carbon-14 has been estimated to be about 22 000 atoms 14C per meter square of the surface of the earth per second, resulting in the global production rate of about 1 PBq/a. Another estimate of the average production rate gives a value of 20 500 atoms m−2s−1. Occasional spikes are possible; for example, there is evidence for an unusual 10-fold increase of the production rate in AD 774–775.

If one of these assumptions has been violated, the simple computation above yields an incorrect age.

Assumptions of Radiometric Dating

(1) the radioactive element decays at a constant rate
(2) the rock crystal being analysed is not contaminated by infusion of excess end product – i.e. it was in a closed system
(3) the rock crystal contained no end product when it was formed
(4) leaching of the parent element out of the rock sample did not occur.

ASSUMPTION: It is assumed that the rate of decomposition has always remained constant - *absolutely* constant.

PROBLEM: How can one be certain that decay rates have been constant over *billions* of years? Scientific measurements of decay rates have only been conducted since the time of the Curies in the early 1900s. Yet evolutionists are boldly making huge extrapolations back over 4.5 billion years and more. There is some evidence that the rate of radioactive decay can change. If the decay rates have ever been higher in the past, then relatively young rocks would wrongly "date" as being old rocks.

ASSUMPTION: Evolutionists generally assume the material being measured had no original "daughter" element(s) in it, or they assume the amount can be accurately estimated. For example, they may assume that all of the lead in a rock was produced by the decay of its uranium.

PROBLEM: One can almost never know with absolute certainty how much radioactive or daughter substance was present at the start.

ASSUMPTION: Evolutionists have tended to assume that the material being measured has been in a closed system. It has often been wrongly assumed that no outside factors altered the normal ratios in the material, adding or subtracting any of the elements involved.

PROBLEM: The age estimate can be thrown off considerably, if the radioactive element or the daughter element is leached in or leached out of the sample. There are evidences that this could be a significant problem. Simple things such as groundwater movement can carry radioactive material or the daughter element into or out of rock. Rocks must be carefully tested to determine what outside factors might have changed their content.

The assumption about initial amounts of daughter isotope

If one does assume a constant decay rate, and if one starts with an originally pure sample of the parent element, then the proportion of parent to daughter tells us the number of half-lives, which has been used to find the supposed age of igneous rocks.

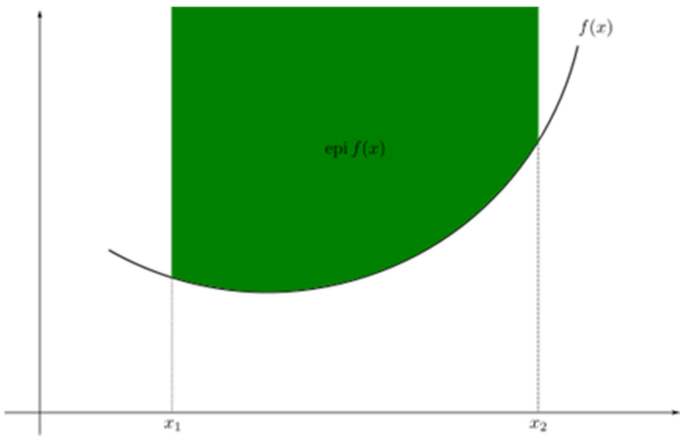
For example, if there are equal amounts of parent and daughter isotopes, then one half-life has passed. If there are three times as many daughter isotopes as parent, then two half-lives have passed, and so on.

Most scientists today assume that the dates they give indicate the time the magma *cooled.* This also assumes that there were *no* initial daughter isotopes contained in the magma at the time of cooling. The assumption is that at least a great majority of the isotope present was the parent isotope. This parent isotope then degraded to the daughter isotope over time.

Radioactive Decay & Probability Theory

Radioactive decay is a stochastic (i.e., random) process at the level of single atoms, in that, according to quantum theory, it is impossible to predict when a particular atom will decay. However, the chance that a given atom will decay is constant over time. For a large number of atoms, the decay rate for the collection is computable from the measured decay constants of the nuclides (or equivalently from the half-lifes).

In probability theory, a convex function applied to the expected value of a random variable is always less or equal to the expected value of the convex function of the random variable. This result, known as Jensen's inequality underlies many important inequalities (including, for instance, the arithmetic-geometric mean inequality and Hölder's inequality). Exponential growth is a special case of convexity. Exponential growth narrowly means "increasing at a rate proportional to the current value", while convex growth generally means **"increasing at an increasing rate (but not necessarily proportionally to current value)**". It may well be that radioactive decay fits the latter description.



A convex function

The mystery of the varying nuclear decay

“It is well-known that a radioactive substance follows a fixed exponential decay, no matter what you do to it. The fact has been set in stone since 1930 when the “father” of nuclear physics Ernest

Rutherford, together with James Chadwick and Charles Ellis, concluded in their definitive Radiations from Radioactive Substances that “the rate of transformation is a constant under all conditions.”

But this is no longer the view of a pair of physicists in the US. Ephraim Fischbach and Jere Jenkins of Purdue University in Indiana are claiming that, far from being fixed, certain decay “constants” are influenced by the Sun. It is a claim that is drawing mixed reactions from others in the physics community, not least because it implies that decades of established science is flawed. The Purdue researchers in late 2006 began monitoring another nuclear isotope, manganese–54, for unexpected fluctuations. Initially the manganese’s decay seemed to closely follow the usual exponential law. But on 13 December 2006 Jere Jenkins, hearing a story on FOX News about an unusually large solar flare, prompting them to compare their manganese data with X-ray readings from satellites. They discovered that a spike in X-ray flux associated with the flare roughly coincided with a dip in the manganese’s decay rate. Two days later, an X-ray spike from a second solar flare coincided with another, though very faint, dip. Then, on 17 December, a third X-ray spike accompanied yet another dip, which was more prominent. The Purdue researchers submitted a paper on the solar flare correlations to Physical Review Letters but it was rejected, they say, because there was no mechanism to back it up.

Even if Fischbach and Jenkins are wrong in their explanation of their observations their data still remains. Their finding that decay rates aren’t fundamental constants is not without support. In 1992, Jung et al.[26] of the Darmstadt Heavy-Ion Research group observed an accelerated β decay of $^{16}3Dy_{66}$+. Although neutral ^{163}Dy is a stable isotope, the fully ionized $^{163}Dy_{66}^{+}$ undergoes β decay into the K and L shells with a half-life of 47 days. Rhenium-187 is another spectacular example. 187Re normally beta decays to 187Os with a half-life of 41.6 × 109 years (i.e. 41.6 billion),[27] but studies using fully ionised 187Re atoms (bare nuclei) have found that this can decrease to only 33 years. This is attributed to "bound-state β- decay" of the fully ionised atom – the electron is emitted into the "K-shell" (1s atomic orbital), which cannot occur for neutral atoms in which all low-lying bound states are occupied.[28] Nevertheless, there is a massive difference between a half-life of 41.6 billion and 33 years. That sort of difference might change the whole radiometric dating issue. What’s more, when thought is given to the high temperatures involved when igneous rocks are formed it may be possible that the radioactive elements in them might well have been ionized.

Recent results suggest the possibility that decay rates might have a weak dependence on environmental factors. It has been suggested that measurements of decay rates of silicon-32, manganese-54, and radium-226 exhibit small seasonal variations (of the order of 0.1%), while the decay of Radon-222 exhibit large 4% peak-to-peak seasonal variations. It has been found that the decay rate of Radon-222 is a function of date and time of day.

---

[26] M. Jung et al., Phys. Rev. Lett. 69, 2164 (1992) First observation of bound-state beta minus decay.

[27] Smoliar, M.I.; Walker, R.J.; Morgan, J.W. (1996). "Re-Os ages of group IIA, IIIA, IVA, and IVB iron meteorites". Science 271 (5252): 1099–1102Bibcode:1996Sci...271.1099S. doi:10.1126/science.271.5252.1099.

[28] Bosch, F.; Faestermann, T.; Friese, J.; Heine, F.; Kienle, P.; Wefers, E.; Zeitelhack, K.; Beckert, K. et al. (1996). "Observation of bound-state β– decay of fully ionized 187Re:187Re-187Os Cosmochronometry". Physical Review Letters 77 (26): 5190–5193. Bibcode:1996PhRvL..77.5190B. doi:10.1103/PhysRevLett.77.5190. PMID 10062738

The Problem with Leaching

The Potassium-Argon dating method suffers from both leaching and contamination problems.

Rubidium-Strontium and Uranium-Lead also has problems of the same kind.

Potassium, Rubidium and Uranium salts are highly soluble.

Leaching of the parent element out of the rock would increase the age of a K-Ar sample.

However the U.S. Geological Survey states: *"…As much as 90 per cent of the total radioactive elements of some granites could be removed by leaching the granulated rock with weak acid…as much as 40 per cent of the uranium in most fresh-appearing igneous rocks is readily leachable.*[29]*"* This is a significant statement for radiometric dating. Leaching is more than a possibility – it is very likely to have happened!

The uranium, thorium-lead method is based on uranium and thorium atoms which are radioactive and decay through a series of radioactive daughters to stable atoms of lead (Pb).

Minerals that contain both elements can be dated by three separate methods based on the decay of uranium-238 to lead-206, uranium-235 to lead-207, and thorium-232 to lead-208.

The three dates agree with each other only when no atoms of uranium, thorium, lead, and of the intermediate daughters have escaped. **Only a few minerals satisfy this condition.**

Dating Anomalies

Radiometric Dating throws up hard to explain dates. Age estimates which are obviously wrong or contradictory are sometimes produced. For example:

- New rock in the form of hardened lava flows produced estimated ages as great as 3 billion to 10.5 billion years, when they were actually less than 200 years old.[30]
- M^{t}. S^{t}. Helens in 1980 provides a radioisotope age of 2.8 million years although the rock was only 15 years old
- M^{t}. Kilauea of Hawaii provided a radioisotope age of 21 million years although rock is less than 200 years old[31]

---

[29] M.R. Klepper and D.G. Wyant, *Notes on the Geology of Uranium*, U.S. Geological Survey Bulletin No. 1046-F (1957), p. 93 (emphasis added).]

[30] John G. Funkhouser, et al., "The Problems of Dating Volcanic Rocks by the Potassium-Argon Methods," Bulletin Volcanologique, Vol. 29 (1966), p. 709. John G. Funkhouser and John J. Naughton, "Radiogenic Helium and Argon in Ultramafic Inclusions from Hawaii," Journal of Geophysical Research, Vol. 73, No. 14 (July 15, 1968), pp. 4601-4607 (especially p. 4606) (volcanic eruption of 1800 on Hualalai Island, Hawaii, produced rocks which falsely "dated" 160 million to 3 billion years). C. Noble and John J. Naughton, "Deep-Ocean Basalts: Inert Gas Content and Uncertainties in Age Dating," Science, Vol. 162 (October 11, 1968), p. 265.

[31] Slusher, H. S. 1981. Critique of radiometric dating. Inst. Creation Res., Tech. Monogr. 2 (2nd ed.). 46 pp. (1st ed., 1973.)

- New Zealand volcano (M^{t}. Ngauruhoe) provides radioisotope ages of 133 million, 197 million and 3.9 billion years (different techniques) although rock is less than 50 years old.
- A popular and supposedly fool proof method was used on two lava flows in the Grand Canyon that should be ideal for radioactive age estimation. The results were similarly bad. Young basalt rock at the Canyon's top produced an age estimate 270 million years older than ancient basalt rock at the Canyon's bottom. The problem seems to arise from basic wrong assumptions in the method (rubidium-strontium isochron). If such a sophisticated method is so flawed, geologist Dr. Steven Austin rightly wonders, "Has anyone successfully dated a Grand Canyon rock?"[32]

Radiometric Dating: Calibrating the Relative Time Scale

For almost the next 100 years, geologists operated using relative dating methods, both using the basic principles of geology and fossil succession (biostratigraphy). Various attempts were made as far back as the 1700s to scientifically estimate the age of the Earth, and, later, to use this to calibrate the relative time scale to numeric values (refer to "Changing views of the history of the Earth" by Richard Harter and Chris Stassen). Most of the early attempts were based on rates of deposition, erosion, and other geological processes, which yielded uncertain time estimates, but which clearly indicated Earth history was at least 100 million or more years old. A challenge to this interpretation came in the form of Lord Kelvin's (William Thomson's) calculations of the heat flow from the Earth, and the implication this had for the age -- rather than hundreds of millions of years, the Earth could be as young as tens of million of years old. This evaluation was subsequently invalidated by the discovery of radioactivity in the last years of the 19th century, which was an unaccounted for source of heat in Kelvin's original calculations. With it factored in, the Earth could be vastly older. Estimates of the age of the Earth again returned to the prior methods.

The discovery of radioactivity also had another side effect, although it was several more decades before its additional significance to geology became apparent and the techniques became refined. Because of the chemistry of rocks, it was possible to calculate how much radioactive decay had occurred since an appropriate mineral had formed, and how much time had therefore expired, by looking at the ratio between the original radioactive isotope and its product, if the decay rate was known. Many geological complications and measurement difficulties existed, but initial attempts at the method clearly demonstrated that the Earth was very old. In fact, the numbers that became available were significantly older than even some geologists were expecting -- rather than hundreds

---

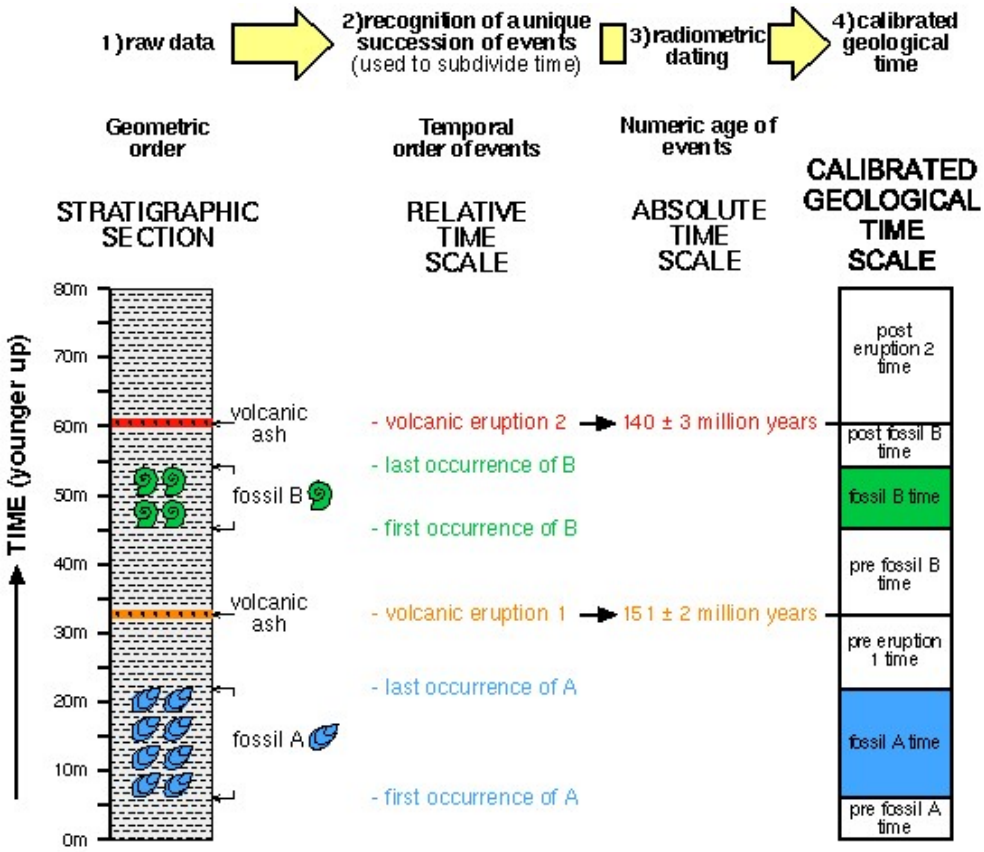
[32] William Laughlin, "Excess Radiogenic Argon in Pegmatite Minerals," Journal of Geophysical Research, Vol. 74, No. 27 (December 15, 1969), p. 6684. Sidney P. Clementson, "A Critical Examination of Radioactive Dating of Rocks," Creation Research Society Quarterly, Vol. 7, No. 3 (December 1970), pp. 137-141.
The two lava flows are the western Grand Canyon lava flows (basalt, 1.34 0.04 billion years) and the Precambrian Cardenas Basalt (1.07 0.07 billion years). [Steven A. Austin, "Excessively Old 'Ages' for Grand Canyon Lava Flows," Impact, No. 224 (Santee, California: Institute for Creation Research, February 1992), 4 pp.; "Grand Canyon Lava Flows: A Survey of Isotope Dating Methods," Impact, No. 178 (Santee, California: Institute for Creation Research, April 1988), 4 pp.]

of millions of years, which was the minimum age expected, the Earth's history was clearly at least billions of years long.

Radiometric dating provides numerical values for the age of an appropriate rock, usually expressed in millions of years. Therefore, by dating a series of rocks in a vertical succession of strata previously recognized with basic geologic principles (see Stratigraphic principles and relative time), it can provide a numerical calibration for what would otherwise be only an ordering of events -- i.e. relative dating obtained from biostratigraphy (fossils), superpositional relationships, or other techniques. The integration of relative dating and radiometric dating has resulted in a series of increasingly precise "absolute" (i.e. numeric) geologic time scales, starting from about the 1910s to 1930s (simple radioisotope estimates) and becoming more precise as the modern radiometric dating methods were employed (starting in about the 1950s).1

A Theoretical Example

To show how relative dating and numeric/absolute dating methods are integrated, it is useful to examine a theoretical example first. Given the background above, the information used for a geologic time scale can be related like this:



How relative dating of events and radiometric (numeric) dates are combined to produce a calibrated geological time scale. In this example, the data demonstrates that "fossil B time" was somewhere between 151 and 140 million years ago, and that "fossil A time" is older than 151 million years ago. Note that because of the position of the dated beds, there is room for improvement in the time

constraints on these fossil-bearing intervals (e.g., you could look for a datable volcanic ash at 40-45m to better constrain the time of first appearance of fossil B). 1) Raw data 2) Recognition of a unique succession of events 3) radiometric dating 4) calibrated geologic time

A continuous vertical stratigraphic section will provide the order of occurrence of events (column 1 of figure above). These are summarized in terms of a "relative time scale" (column 2). Geologists can refer to intervals of time as being "pre-first appearance of species A" or "during the existence of species A", or "after volcanic eruption #1" (at least six subdivisions are possible in the example above). For this type of "relative dating" to work it must be known that the succession of events is unique (or at least that duplicate events are recognized -- e.g., the "first ash bed" and "second ash bed") and roughly synchronous over the area of interest. Unique events can be biological (e.g., the first appearance of a particular species of organisms) or non-biological (e.g., the deposition of a volcanic ash with a unique chemistry and mineralogy over a wide area), and they will have varying degrees of lateral extent. Ideally, geologists are looking for events that are unmistakably unique, in a consistent order, and of global extent in order to construct a geological time scale with global significance. Some of these events do exist.

It is claimed that whatever the situation, the current global geological time scale makes predictions about relationships between relative and absolute age-dating at a local scale, and the input of new data means the global geologic time scale is continually refined and is known with increasing precision.

However these sorts of statements ultimately rely on the accuracy of the radiometric dating techniques and as we have seen they are not reliable,

Carbon-14 Dating

In 1947 the chemist Willard Frank Libby developed the carbon-14 dating technique. For that he received the Nobel Prize for Chemistry in 1960. His methods are now used in a variety of situations. All of those situations have to do with samples that involve organic material; bones, fire ash, cloth (eg Turin Shroud), wood, parchment, various fossils etc. The fact that Carbon-14 has a half-life of 5,730[33] years, makes C-14 dating suitable for items that come from recent history. C-14 dating is seen as acceptable.

It is important to note that for C-14 dating the conditions are:

1. The material to be dated must be organic
2. The organism to be tested must have gotten its C-14 from the atmosphere
3. The sample has remained chemically and physically a closed system since its emplacement.
4. That we know what the atmospheric concentration of C-14 was when the organism lived.

The third and fourth conditions are not so easily satisfied. Condition 3 is very hard to satisfy. There can be no guarantee that any organic sample that is up for testing has never been contaminated.

Condition 4 is even more dubious. Libby assumed that a steady state situation existed between the rate of formation of C-14 and the rate of decay. Indeed the technique hinges on that assumption.

Balance between C-14 formation and decay?

This last condition placed on radiocarbon dating hinges on Willard Liddy's critical assumption that the earth was so old that a balance between formation and decay must exist. He wrote: "If the cosmic radiation has remained at its present intensity for 20,000 or 30,000 years, and if the carbon reservoir has not changed appreciably in this time, then there exists at the present time a complete balance between the rate of disintegration of radiocarbon atoms and the rate of assimilation of new radiocarbon atoms for all material in the life-cycle."

More recently others have tried to duplicate Libby's measurements with more modern equipment and much greater accuracy. They concluded that the out-of-balance condition is real and even worse than Libby believed. Radiocarbon is forming 28% - 37% faster than it is decaying. This effectively means radiocarbon dating should not be used but it still is. Scientists have a love affair with the technique and are unwilling to take on board the implications of recent discoveries.

Arriving at the estimate

In order to arrive at an estimate (note – only an estimate) of C-14 in the environment an inventory of C-14 needs to be taken. However, for each part of the environment only an estimate can be made. The concentration of C-14 cannot be measured. It is in many respects a guess and that's all.

[33] This has been corrected.

The current estimates of carbon-14 in Earth's biosphere is about 300 megacuries (11 EBq), of which most is in the oceans.

- The following inventory of carbon-14 has been given:
  - Global inventory: ~8500 PBq (about 50 t)
  - Atmosphere: 140 PBq (840 kg)
  - Terrestrial materials: the balance
  - From nuclear testing (till 1990): 220 PBq (1.3 t)

Dispersion of C-14 in the environment

However any estimate is complicated by the facts. For example, after production in the upper atmosphere, the C-14 atoms react rapidly to form mostly (about 93%) ^{14}CO (carbon monoxide), which subsequently oxidizes at a slower rate to form $^{14}CO_2$, radioactive carbon dioxide. The gas mixes rapidly and becomes evenly distributed throughout the atmosphere (the mixing timescale in the order of weeks). Carbon dioxide also dissolves in water and thus permeates the oceans, but at a slower rate. The atmospheric half-life for removal of $^{14}CO2$ has been estimated to be roughly 12 to 16 years in the northern hemisphere. The transfer between the ocean shallow layer and the large reservoir of bicarbonates in the ocean depths occurs at a limited rate.

The upshot of this is that it is very difficult to arrive at an accurate figure for the current C-14 concentration upon which C-14 dating depends.

Libby's Carbon Exchange Reservoir Theory Doesn't Hold True

Libby's original exchange reservoir hypothesis assumed that the exchange reservoir is constant all over the world. However, since Libby's early work was published (1950 to 1958), latitudinal and continental variations in the carbon exchange reservoir have been observed by Hessel de Vries Subsequently, methods have been developed that allow the correction of these so-called reservoir effects, including:

When CO_2 is transferred from the atmosphere to the oceans, it initially shares the 14C concentration of the atmosphere. However, turnaround times of CO_2 in the ocean are similar to the half-life of 14C (making ^{14}C also a dating tool for ocean water). Marine organisms feed on this "old" carbon, and thus their radiocarbon age reflects the time of CO_2 uptake by the ocean rather than the time of death of the organism. This marine reservoir effect is partly handled by a special marine calibration curve, but local deviations of several hundred years exist.

Erosion and immersion of carbonate rocks (which are generally older than 80,000 years and so shouldn't contain measurable ^{14}C) causes an increase in ^{12}C and ^{13}C in the exchange reservoir, which depends on local weather conditions and can vary the ratio of carbon that living organisms incorporate. This is believed to be negligible for the atmosphere and atmosphere-derived carbon, since most erosion will flow into the sea. The atmospheric ^{14}C concentration may differ substantially from the concentration in local water reservoirs. Eroded from $CaCO_3$ or organic

deposits, old carbon may be assimilated easily and provide diluted =^{14}C carbon into trophic chains. So the method is less reliable for such materials, as well as for samples derived from animals with such plants in their food chain. Volcanic eruptions eject large amounts of carbon into the air, causing an increase in ^{12}C and ^{13}C in the exchange reservoir and can vary the exchange ratio locally. This explains the often irregular dating achieved in volcanic areas.

The earth is not affected evenly by cosmic radiation, the magnitude of the radiation at a particular place depends on both its altitude and the local strength of the earth's magnetic field strength, thus causing minor variation in the local =^{14}C production. This is accounted for by having calibration curves for different locations of the globe. However, this could not always be performed, as tree rings for calibration were only recoverable from certain locations in 1958. The rebuttals by Münnich et al . and by Barker both maintain that, while variations of carbon-14 exist, they are about an order of magnitude smaller than those implied by Crowe's calculations.

These effects were first confirmed when samples of wood from around the world, which all had the same age (based on tree ring analysis), showed deviations from the age. Calibration techniques based on tree-ring samples have contributed to increased accuracy since 1962, when they were accurate to 700 years at worst.

Can we prove that Carbon dates are accurate?

There are usually two ways cited to do this by:

1. We can date things for which historians know "the right answer."
2. We can date things that have been dated by some other method.

As to the first point, investigators used specimen from the Dead Sea scrolls, the Minoan ruins, and acacia wood from the tomb of pharaoh Zoser. Organic material from the tomb of king Tut was also used.

But there is evidence that the 18th dynasty has been misdated by some 600 years and therefore any carbon dates based on 18th dynasty samples would be proportionally erroneous.

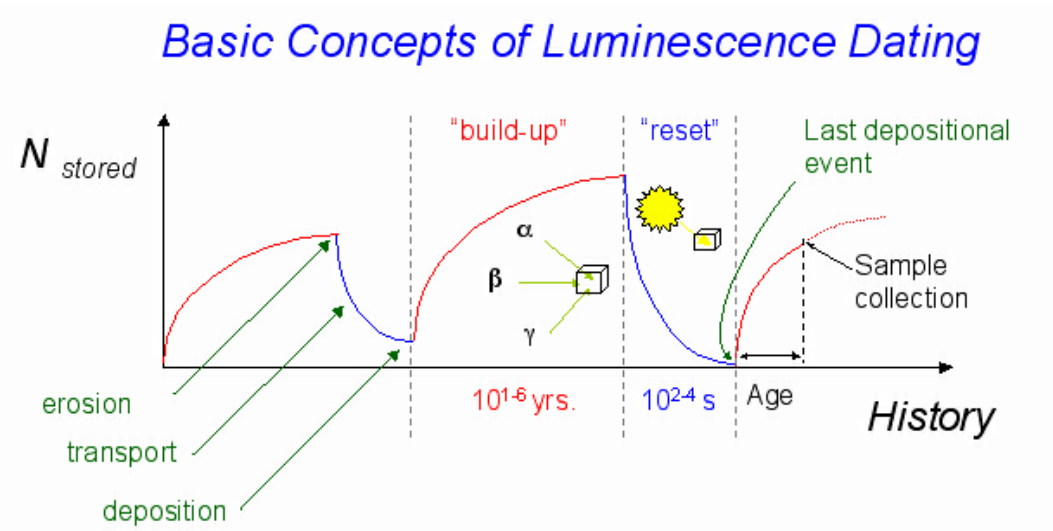
It appears that only the Dead Sea scrolls may be of some help for C-14 dating since the chronologies of the other two are by no means certain. But even in the case of the Dead Sea scrolls there may be a range of dates to be considered.

The Attitude of Scientists

As we have seen in the case of radiometric dating, the need to know the original concentration of the daughter product, and the need for any system to be closed system, is simply ignored. They are trampled on, and they expect that any old date that is published in the name of science should be accepted. However, that is not intellectually honest. If assumptions do not hold true, the method does not hold true. Yet the gullible public is expected to accept anything that comes out of the mouth of a scientist.

Luminescence Dating

The principle behind the method is simple. Ordinary sand when it's buried absorbs and traps energy from the earth. Over time, this energy accumulates. But if you dig up the sand and rapidly heat it in one of these cylinders all that energy is released in a flash of light. The intensity of that light corresponds to how long the sand has been buried. Sunlight, or ultra-violet light also releases the stored energy and resets the crystal clock Luminescence dating is a form of geochronology that measures the energy of photons being released. In natural settings, ionizing radiation from U, Th, Rb, & K is absorbed and stored by sediments in the crystal lattice. This stored radiation dose can be evicted with stimulation and released as luminescence. The calculated age is the time since the last exposure to sunlight or intense heat. The sunlight bleaches away the luminescence signal and resets the time 'clock'. As time passes, the luminescence signal increases through exposure to the ionizing radiation and cosmic rays. Luminescence dating is based on quantifying both the radiation dose received by a sample since its zeroing event, and the dose rate which it has experienced during the accumulation period. The principal minerals used in luminescence dating are quartz and potassium feldspar.



Optical dating is one of several techniques in which an age is calculated as follows:

Age = Total absorbed radiation dose / Radiation dose rate.

The radiation dose rate is calculated from measurements of the radioactive elements (K, U, Th and Rb) within the sample and its surroundings and the radiation dose rate from cosmic rays. The dose rate is usually in the range 0.5 - 5 grays/1000 years. The total absorbed radiation dose is determined by exciting specific minerals (usually quartz or feldspar) extracted from the sample with light and measuring the amount of light emitted as a result. The photons of the emitted light must have higher energies than the excitation photons in order to avoid measurement of ordinary photoluminescence. A sample in which the mineral grains have all been exposed to at least a few seconds of daylight can be said to be of zero age; when excited it will not emit any such photons. The older the sample is, the more light it emits.

Ages can be determined typically from 300 to 100,000 years BP, and it is said they can be reliable when suitable methods are used and proper checks are done. Ages can be obtained outside this range, but they should be regarded with caution. The accuracy obtainable under optimum circumstances is about 5%.

Assumption: The optical dating method relies on the assumption that the mineral grains were sufficiently exposed to sunlight before they were buried. This is usually, but not always, the case with Aeolian deposits, such as sand dunes and loess, and some water-laid deposits.

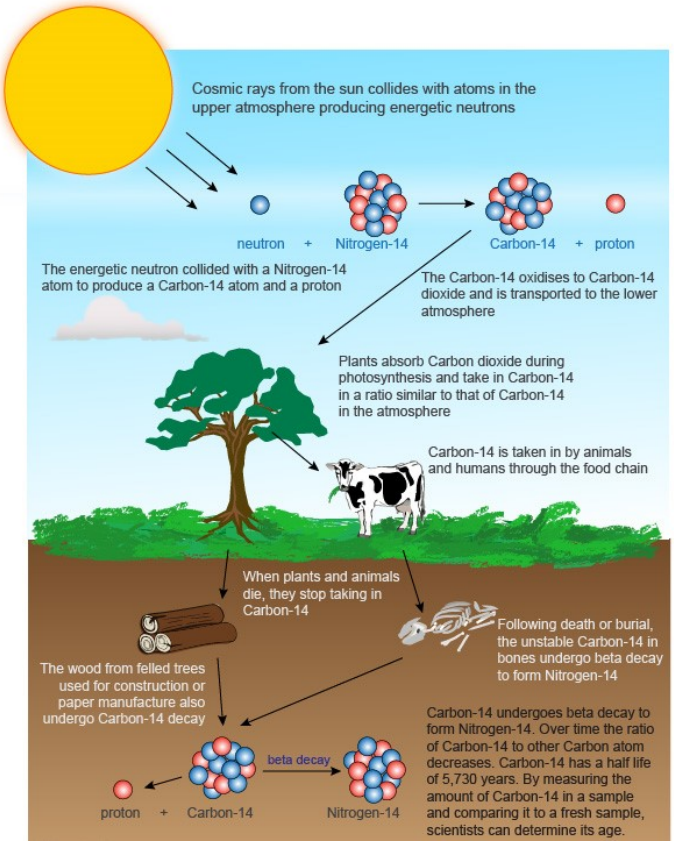
Heating and Bleaching

Before performing a full dating analysis, each sample must be checked to determine whether the heating in antiquity was sufficiently high for dating purposes. Samples are selected according to macroscopic signs (reddish or pink colour, glossy scars or glossy surface, crazing, pot lids, or cracked faces) that indicate heating. [34]The sufficiency (ca. 400° C) of the heating is checked by the heating plateau test[35] where the ratio of NTL over NTL is required to be constant for the temperature range of the TL peak (ca. 370° C), which indicates the zeroing of the TL signal in antiquity. Additionally, the shape and temperature of the glow peak can provide evidence of sufficiency of ancient heating[36] Exposure to light can have a similar zeroing (bleaching) effect. Although there is little evidence of sensitivity to bleaching of the high-temperature TL peak used in dating heated flint care has to be taken with translucent samples[37], which might have been bleached during or after excavation. Such bleaching would give rise to severe age underestimation. It is, therefore, necessary in some cases to check whether the TL-peak used is prone to bleaching.[38]

A critique of Luminescence Methods

All dosimetric dating methods are dependent on the sites' environment. Therefore, they are prone to error due to variation of the environment. The degree of influence of environment on the age result depends on the proportion of the varied parameter to the sum of all parameters. This has to be taken into consideration and evaluated for all results. Of all dosimetric methods, TL on heated rock material is the least sensitive, due to the stable internal dose rate in all samples. Little or no internal dose rates are present for materials used in OSL[39] dating of sediment. In addition to the problems arising from the aforementioned variability, OSL dating suffers from potential problems in the completeness of the zeroing of the signal and the possible incorporation of sediments of different ages.

[34] e.g., Julig et al., 1999
[35] Aitken, 1985
[36] e.g., Michab et al., 1998; Richter et al., 2002
[37] Huxtable and Aitken, 1985; Valladas, 1985a
[38] e.g., Alperson- Afil et al., in press
[39] This was used to date aboriginal camp fires at Lake Mungo in NSW at 40-50000 years.



Fission Track Dating

The next candidate dating method is fission track dating. Some minerals contain uranium 238 which decays by fission. It splits in two, and the pieces fly apart through the mineral, creating fission tracks. These tracks can be made visible by etching with an acid solution, and then counted. By knowing how much uranium 238 there is in a rock and by counting the number of fission tracks, one can measure the age of the rock.

When the uranium content is known, the age of the sample can be calculated. The amount of uranium present can be determined by irradiation that produces thermal fission of uranium-235, which produces another population of tracks, related to the uranium concentration of the mineral.

This method is said to be suitable for dating a variety of minerals and both natural and manufactured glass. Its range extends from less than 100 years to hundreds of millions of years. The useful age range of this technique is thought to range from 100 years to 100 million years before present (BP), although error estimates are difficult to assess and rarely given. Generally it is thought to be most useful for dating in the window between 30,000 and 100,000 years ago.

Indeed the method is seen as a saviour of radiometric dating.

It is important to realize that fission tracks in minerals have a specific length when they form, and this length is revealed by etching crystals on a grain-internal surface. When the etching fluid enters the crystal along tracks, cleavage planes or cracks, it happens from time to time that below the surface, but parallel to it, a track is revealed that we can observe in its full length. We call those tracks horizontal confined tracks. When we measure the length of those horizontal confined tracks in a sample (normally, 100 measurements per sample), we gain very important information about the thermal history of the sample after the onset of track accumulation. Be aware that the number of tracks will not provide an answer about how old a grain is or how old the rock is the grain was separated from. But: fission tracks are thermally unstable at high temperatures, and will only be accumulated when cooled below a certain temperature. If we heat the sample afterwards, tracks will be shortened and the age of the sample will become younger. The clue, however, is that we see the shortening of the tracks when measuring track lengths in that specific sample, which is routinely done. Thus, the take home messages: 1. Fission track ages are not formation ages, but are cooling ages. 2. The fission track method produces two data sets, which are closely connected to each other, ages and track length distributions.

There are a number of problems with this method, and even geologists have had intense disagreements about its reliability. The ages often do not agree with what geologists expect. One problem is that certain constants involved in this method are not known or are hard to estimate, so they are calibrated based on the "known" ages of other rocks. If these other "known" ages are in error, then fission track dates are in error by the same amount.

One scientist, Meinert Rahn[40], writes:

“Fact is that there is a growing community of fission trackers, which proves that the method has become very popular among geologists during the last few decades. If one realizes that the fission track age does not allow to determine the age of a rock (unless this rock cooled very rapidly, e.g.

[40]Prof Dr Meinert Rahn Head of the Geology Section of the Swiss Federal Nuclear Safety Inspectorate as of 2009 – well versed in fission track dating.-

during volcanic eruptions or at impact events), but only the age of the rock cooling through a certain temperature range, there is a clear answer that we can give with this method. It is true that the fission track method relies on other dating techniques, but we are on our way to establish an absolute approach. Be also aware that the method started as an independent method in the 1960s, and that already at that time people produced a lot of data which were much too young than expected from dating with other methods. In review, most of these discrepancies could be explained by the two points listed above, i.e. that the fission track method does not produce formation ages and that the reliability of an age can be controlled by looking at the track lengths. Routine track length measurements were only introduced in the 1980s . You are mentioning that certain constants involved in this method are not known or are hard to estimate. The age calculation formula contains several parameters, some of which are known with high precision such as e.g. the alpha-decay constant of uranium 238, some others may include larger errors. The most tricky parameter is the fission decay constant of uranium 238, which is the only relevant nuclide[41] for the production of fission tracks. If one takes all physical estimates on this constant from the literature, they vary by +/- 20%. The fission track community has carefully evaluated among those existing values and among the applied methods and finally has agreed on a value that is intermediate to all estimates and was measured by a very precise method with a small potential of flaws. Be aware that the change of this constant may have a distinct influence on the age, however, only in the range of 20% and not of orders of magnitude. If one knows that fission track ages generally have a precision of +/- 5-10%, this is acceptable.

"Another problem is that fission tracks fade at high temperatures. So if there are too few tracks, the geologist can always say that most of them faded away. To get a fission track date, one has to know something about the temperature history of a rock."

“I assume that this problem is answered by my explanations above. Track fading can be controlled by looking at the track lengths in a sample. There are, in addition, computer programs based on Monte Carlo algorithm that use age and track length information to generate a pattern of time-temperature paths in order to find out whether a certain data set allows one or more possible solutions (among which, hopefully only one fits with the geologic boundary conditions). You may argue that this sounds like a self-supporting system, however, tracker very often have their sample numbers encoded in order to avoid any misleading expectations while counting, and the modelling of the data is commonly done on the basis of a minimum of very simple assumptions in order to give the system the maximum freedom to find the right solution.”

"Another problem is that uranium 238 can be removed from a rock by water. If a sample loses 99 percent of its uranium, then the fission track date will be 100 times too old. In fact, if a rock loses only about 1/350 of its uranium each year, then in 4000 years only one part in one hundred thousand of the uranium will remain, meaning that the date can approach a hundred thousand times too old. Now, 1/350 of the uranium each year is not much, especially when you consider that

[41] A nuclide is a type of atom whose nuclei have specific numbers of protons and neutrons

water occurs practically everywhere in the earth below a few hundred feet, and rocks shallower than this also become wet due to rainfall filtering down through the soil."

U loss, either by diffusion or dissolution is a process that does start from the surface of the grain we are looking at. Sometimes the grain surface is enlarged by cracks or cleavage planes that can be used as pathways for water to enter the crystal and by U to leave the crystal. However, on an internal surface of a grain, such a process should be visible by a gradient of U from rim to centre (zoning in U content). Zoning is a very common feature in some of the minerals. However, zoning by loss of U would lead to a U poor rim and a U rich core. The zoning that we observe is different from such a zoning and cannot be explained by U loss. Furthermore, the presence of complicate zoning patterns strongly suggests that U loss by U diffusion is not an important process, at least of no importance over the time range since grain formation. There are studies around that show hydrothermally altered zircon crystals, and these processes have an influence on the mineral composition of the grains, but it is also evident from such studies that the effects on the zircon crystal have a much stronger impact on major elements than on trace elements such as U. In general, crystalline matter still is the strongest way of binding elements.

"Another problem is knowing what is a fission track and what is just an imperfection in the rock. Geologists themselves suggest that imperfections are at times mistaken for fission tracks, and admit that fission tracks are not always easy to recognize. Textbooks have beautiful, clean pictures of fission tracks, but I doubt that these illustrations correspond to reality."

Yes, this is a good argument. I know some samples, where you are in difficulties in finding a single grain under the microscope with clear tracks and not full of other features that may be similar to tracks. There are, however, some good arguments to reject most of these features: First, tracks are straight, never curved. Second, they always show characteristic ends that show a strong younging of the etched track. Third, tracks are always randomly oriented. Never touch a grain with more than three tracks showing exactly in the same direction. Fourth, tracks have a characteristic range and a characteristic colour (these are just hints, some other inclusions are too big, some too small, others have the wrong light interference pattern). This helps a lot.

Nevertheless, the fission trackers have soon realized that different fission trackers count differently. Accordingly they introduced a calibration factor, which is established when counting age standards, which were dated by a range of other radiometric dating methods. In this context, it is important to realize that these age standards are over and over re-established. Go and check in the literature by looking for fish Canyon tuff and Durango to only mention two of the most important age standards for fission tracks. These two localities are still the subject of intense research, however, not discussing about order of magnitude, but discussion slight differences, in the range of 20% or less.

"Along this line, it is interesting to note that for every fission of uranium 238, there are over a million decays by a process called alpha decay, in which a helium nucleus is ejected from the nucleus of uranium. The alpha particle creates a long, thin trail of damage, and the former uranium nucleus recoils in the other direction, creating a short, wide track about one thousandth as long as a fission track. Not only this, but what's left of the uranium nucleus (having lost the helium nucleus)

decays by thirteen more steps until it becomes lead, so there are over fourteen million other decays for every fission track. Over four million of these occur within a few days. All of these decays emit particles that damage the crystal structure. Some of these decays emit alpha particles, and some emit beta particles, which are energetic electrons. In addition, many millions of gamma rays are emitted, which are high-energy electromagnetic radiation like X rays, and also damage the crystal structure. Perhaps the damage created by all this radiation can be increased by chemical action and be etched by acid to appear like fission tracks. Or if two alpha particle trails are close enough together, perhaps they can damage the crystal enough so that their combined trail will be etched away by acid like a fission track."

There is abundant research on the impact of the different ways of radiation damage in the mineral zircon and, somewhat less, in the mineral apatite, the two minerals that are most frequently used for fission track dating. It is important to realize that the size of the different damage trails generally differ by several orders of magnitude. You are proposing that two alpha particle tracks may damage a crystal enough to produce a trail similar to a fission track if etched. This is similar to proposing that, seen from an airplane, two parallel little trails next to each other in a meadow look like a highway. Alpha particle trails are unlike fission track not trails of continued damage, but they are isolated damages along a trail that cannot be made visible by etching. You are listing big numbers of trails, however, think about the orders of magnitude of single atoms that effectively can be dislocated by radiation, and you will find out that there still is orders of magnitude more of such positions in a crystal lattice.

"Minerals are also subject to alteration by water, which may contain chemicals that react with the rock. Over long periods of time, all of these processes can damage the crystal structure, and it may be that when the mineral is etched with acid, track-like formations appear as a result."

You are right by stating that with time damage is accumulated. When a mineral grows, a large number of dislocations and crystal lattice defects are incorporated without any radiation or radioactive decay at all. My experience tells me that only a very small part of those defects can be mixed up with tracks (see above). I agree with you that over long periods of time, a lot can happen to those crystals, but all important processes leave their traces behind. I have dated grains from hard rocks with a lot of porosity and from unconsolidated sands and very strongly weathered rocks. It is surprising, however, how fresh the grains normally are, even though the rock they were separated from was strongly weathered. Be aware that the most frequently used minerals, apatite and zircon, are well known to be very stable and hard to destroy mechanically and by chemical treatment. It is, I confess, also known that the grain of apatites in old road cuts is zero, simply because the apatite grains are etched away by the organic acids in a tropical climate. But also in this case, grain remnants still show the correct number of tracks if compared with samples taken from nearby from fresh roadcuts. Thus, there is overall good evidence that alteration of apatite and zircon may only occasionally be important, but the traces of alteration are easy to see, and have no direct influence of the U in the crystal.

"Another problem is that fission tracks in some minerals, like zircons, can survive in lava, so the fission track date can be measuring an older event than the lava flow. Thus we cannot necessarily use this method to date the age of the fossils."

As explained above, fission tracks are subject to annealing when exposed to high temperatures. The annealing is a diffusion-controlled process, i.e. strongly time and temperature dependent. This means that e.g. for zircon an exposure to 700 ^{o}C (this would be a very cold lava), fission tracks would undergo only slight shortening if exposed only during five minutes. Exposed to a temperature of 400 ^{o}C for 100,000 years, however, would wipe away any fission tracks. Coming back to your example: If a zircon bearing sample falls into a rather cold granitic melt, and five minutes later is ejected of the melt, it may well happen that the fission track signal of the sample is only slightly disturbed. If the zircon sample, however, swims within the lava downhill during 3 hours, all fission tracks are gone and the clock reset to zero. We do not know what age will be correct unless we look at the track length distribution. In the five-minute heating sample, many old tracks will be shortened, thus will be shorter than the tracks formed afterwards. In the 3 hour-sample, we will only find long tracks, in agreement with the most probably fast cooling of the lava at the earth's surface.

"I think fission track dating has more potential than the other methods, but in view of all of these problems, I think we'll have to discard fission track dating as a reliable method."

Isochron Dating

Isochron[42] dating is another common technique of radiometric dating and is applied to date certain events, such as crystallization, metamorphism, shock events, and differentiation of precursor melts, in the history of rocks. Evolutionists see this method as incontrovertible evidence of an old earth as it does not have the same weaknesses as the normal radiometric dating techniques.

Isochron dating's only assumption is that the scientist has no idea what the ratios of parent material, and both radioactive and stable daughter material are. If this method works, then it neatly dispenses with all of the remaining issues listed by the creationists. It is the "great white hope' of evolutionists.

The scientist takes a sample of rock and then examines two main ratios. The ratio of the parent isotope and a radiometric daughter isotope and the ratio of the parent isotope to a stable daughter isotope."

The rationale for isochron dating is a follows:

[42] An "isochron" is a set of data points in a plot which all fall on a line representing a single age ("isochron" comes from: "isos" equal + "chronos" time). The term "errorchron" has been coined for a set of data which are not collinear. The best-fit line itself is also sometimes called an "isochron." The plot on which these data points appear is sometimes called an "isochron diagram" or "isochron plot."

All forms of isochron dating assume that the source of the rock or rocks contained unknown amounts of both radiogenic and non-radiogenic isotopes of the daughter element, along with some amount of the parent nuclide.

- Thus, at the moment of crystallization, the ratio of the concentration of the radiogenic isotope of the daughter element to that of the non-radiogenic isotope is some value independent of the concentration of the parent.
- As time goes on, some amount of the parent decays into the radiogenic isotope of the daughter, increasing the ratio of the concentration of the radiogenic isotope to that of the daughter.
- The greater the initial concentration of the parent, the greater the concentration of the radiogenic daughter isotope will be at some particular time.
- Thus, the ratio of the daughter to non-radiogenic isotope will become larger with time, while the ratio of parent to daughter will become smaller. For rocks that start out with a small concentration of the parent, the daughter/non-radiogenic ratio will not change quickly as compared to rocks starting with a large concentration of the parent.

Apart from the initial conditions, the major problem facing geochronologists is that geological systems are invariably open to external influences. Thus, analyses of radioisotopes often produce results that reflect loss, or sometimes gain, of either parent or daughter isotope, rendering single radioactive age determinations suspect. Thus geochronologists tackle the problem by performing a number of radioactive age determinations on a group of samples from the rock under investigation, hoping to pin-point a pattern that will enable the calculation of the desired 'true' age.

If these multiple isotopic analyses of various rock samples, and minerals within those rock samples, are from the same geological unit, then geochronologists can also use what is known as the isochron age determination method. This method is supposed to allow some of the more uncertain assumptions of the normal age calculating method to be circumvented and so permit a higher degree of confidence in the resulting 'age' estimate. Consequently, geochronologists favour this isochron method and so it has become very popular, particularly with rubidium-strontium, samarium-neodymium and uranium-lead isotopic systems.

The Isochron

- Let parent isotope be **P**,
- the daughter isotope as **D**,
- the non-radiogenic isotope of the same element as the daughter, be $\mathbf{D_i}$

- It requires that these measurements be taken from several different objects which all formed at the same time from a common pool of materials. (Rocks which include several different minerals are excellent for this.)

A horizontal line represents “zero age.” As more time passes and a significant amount of radioactive decay occurs, the quantity of **P** decreases by a noticeable amount in each sample, while the quantity of **D** increases by the same amount. This results in a movement of the data points to the left (decreasing **P**) and upwards (increasing **D**). Since each atom of **P** decays to one atom of **D**, the data point for each sample will move along a path with a slope of -1.

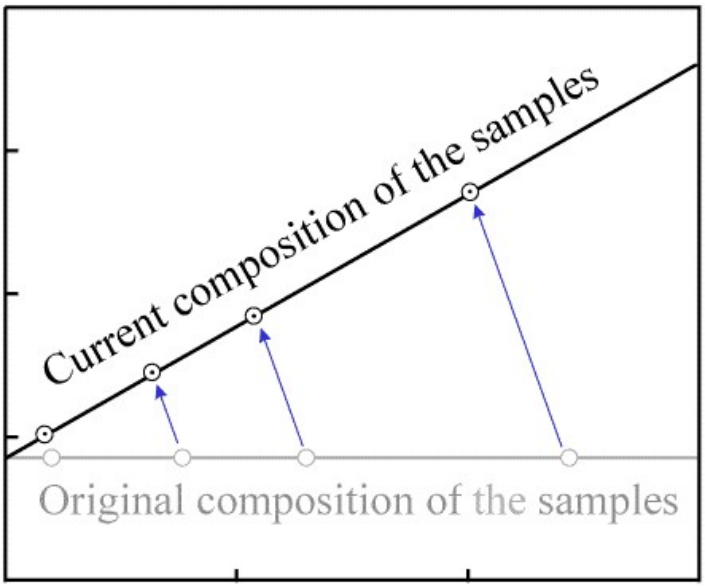
Decay occurs in a proportional manner (that is, when 20% of the **P** in one sample has decayed, 20% of the **P** in *every* sample will have decayed). As a result, the data points with the most **P** (the right-most ones on the plot) move the greatest distance per unit time. The data points remain collinear as time passes, but the slope of the line increases: The slope of the line is the ratio of enriched D to remaining P. It can be used in place of "D_{now}/P_{now}" in the decay equation to obtain the time..

The Calculation

To perform dating, a rock is crushed to a fine powder and minerals are separated by various physical and magnetic means. Each mineral has different ratios between parent and daughter concentrations. For each mineral, the ratios are related by the following equation:

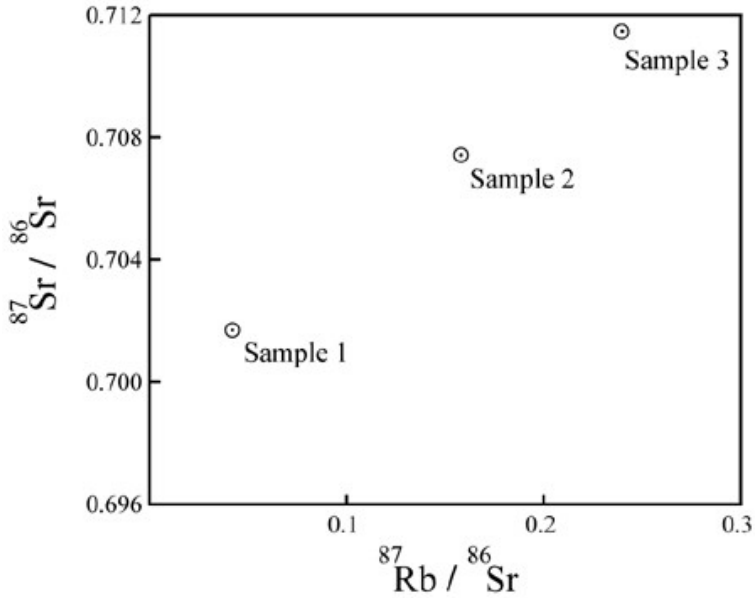
Where:

- D is the initial concentration of the daughter isotope,
- D_i is the concentration of the non-radiogenic isotope of the daughter element (assumed constant),
- P is the initial concentration of the parent isotope, and
- ΔP_t is the total amount of the parent isotope which has decayed by time t.



Setting up an Isochron

Each group of measurements is plotted as a data point on a graph. The X-axis of the graph is the ratio of **P** to $\mathbf{D_i}$. The Y-axis of the graph is the ratio of **D** to $\mathbf{D_i}$. For example, an Rb/Sr isochron plot looks like this:



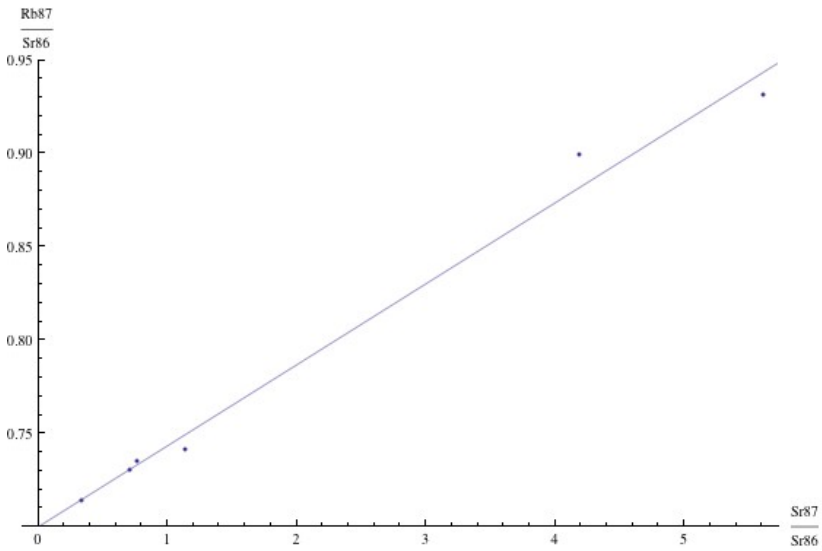
Here is graphically represented the fact that the amount of daughter isotope increases as the amount of parent increases in the sample. The magnitude of that increase (i.e. the slope of the line) depends on the time allowed for the decay process to transpire, or the age of the rock. If we extrapolate down the line to the zero intercept, we have a representation of a sample with no parent isotope to contribute to the daughter concentration. This must represent the initial daughter concentration.**The slope gives the age** and **the intercept is the initial daughter ratio**. The scheme is mathematically sound.

The Assumptions

We must examine the assumptions.

As mentioned above, the isochron dating method boils down to plotting multiple data points, after some calculation, on a graph, which, if the measurements and calculations are done properly, should lie on a straight line, or very nearly on a straight line. The slope of this line, after another simple calculation, then gives the age.

Of course, in real scientific research, scientists do not rely on manually drawing points on graph paper to determine a best-fit straight line or to determine the line's slope or y-intercept. Instead, they use a statistical technique known as linear regression, which computes the least-squares best fit of a straight line through a sequence of points. This technique, which is used in virtually all disciplines of modern social science, physical science and engineering, is entirely straightforward, and computer programs are widely available to do the requisite calculations. An important fact is that linear regression, in addition to giving the best fit of the slope of the line (which then leads immediately to the date), also gives a statistical confidence interval as to the possible error in the determination of the slope.



The data for this graph is a set of measurements of basaltic achondrites (meteorites) in [Basaltic1981, pg. 938]. The date obtained from this isochron (based on the slope of the line), together with statistical standard deviations, are: 4.396 ± 0.18. Ga

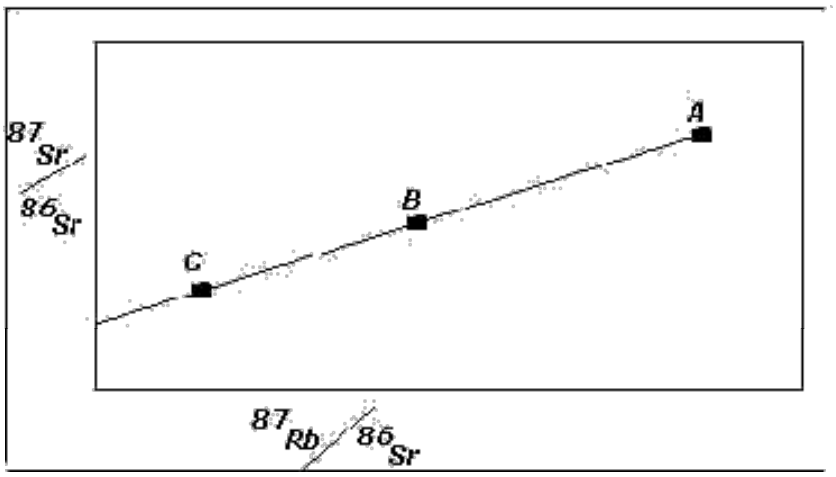
The Rb/Sr decay system

One of the most commonly used systems in isochron dating is the rubidium-strontium system. The decay reaction is:

$$^{87}_{37}Rb \rightarrow {}^{87}_{38}Sr + {}^{0}_{-1}\beta$$

There are things to note about this system:

- It works by ⍰ decay. The neutron emits an electron to become a proton.
- For this decay reaction, l = 1.42 x 10^{-11} /yr,
- The half-life is **⍰$_{1/2}$ = 4.8 x 10^{10} yr**
- At present, 27.85% of natural Rb is ^{87}Rb.



Here graphically represented is the fact that the amount of daughter isotope increases as the amount of parent increases in the sample. The magnitude of that increase (i.e. the slope of the line) depends on the time allowed for the decay process to transpire, or the age of the rock. If we extrapolate down the line to the zero intercept, we have a representation of a sample with no parent isotope to contribute to the daughter concentration. This must represent the initial daughter concentration.

- The slope is the age and the intercept is the initial daughter ratio. The scheme is mathematically sound. We must examine the assumptions.

•

The Isochron Equation

This is the isochron equation for the Rb/Sr system:

$$\left(\frac{^{87}Sr}{^{86}Sr}\right)_t = \left(\frac{^{87}Sr}{^{86}Sr}\right)_0 + \left(\frac{^{87}Rb}{^{86}Sr}\right)_t \left(e^{\lambda t} - 1\right)$$

- We can measure the present ratios of $(^{87}Sr/^{86}Sr)_t$ and $(^{87}Rb/^{86}Sr)_t$ [43]with a mass spectrometer, thus these quantities are known.
- The only unknowns are thus $(^{87}Sr/^{86}Sr)_0$ and t.
- Note also that equation above has the form of a linear equation, i.e. y = ***m***x +***b,*** where ***b***, the y intercept is $(^{87}Sr/^{86}Sr)_0$ and ***m***, the slope is $(e^{\lambda t} - 1)$.

First note that the time t=0 is the time when Sr was isotopically homogeneous, i.e. $^{87}Sr/^{86}Sr$ was the same in every mineral in the rock (such as at the time of crystallization of an igneous rock).

In nature, however, each mineral in the rock is likely to have a different amount of ^{87}Rb. So that each mineral will also have a different $^{87}Rb/^{86}Sr$ ratio at the time of crystallization.

Thus, once the rock has cooled to the point where diffusion of elements does not occur, the ^{87}Rb in each mineral will decay to ^{87}Sr, and each mineral will have a different ^{87}Rb and ^{87}Sr after passage of time.

[43] However, this is not the only way to produce such a linear relationship. Let A and B be two rocks containing only x and y and no z. Suppose A is very old (or appears very old) and B is very young. If A and B become thoroughly mixed. their perceived radiometric age would then be between that of A and B. Now, suppose a mixture of y and z penetrates this mixture of A and B, in some places more than in others, but with a constant ratio of y and z. This will then yield a beautiful isochron (obeys the isochron equation), but the age given will be meaningless. This can also happen if water removes a constant fraction of x but no y from A, making A appear older, and then the mixture of y and z enters. Another possibility is for A to have a constant concentration of x and y at the beginning, and for more y to enter, making A appear older. Then if a mixture of y and z enters, a nice isochron yielding a false age will be produced. A final possibility is for A to have a constant ratio of x and y at the beginning. Then a lot more y enters by diffusion. Then the rock is heated and mixed so the ratio of x and y is everywhere the same. This makes the rock look much older. Finally, a mixture of y and z enters, different amounts at different places. This will also produce a false, and much too old, isochron. These five false isochrons scenarios are not at all implausible, especially when one considers that the daughter element y is often argon, a gas that is relatively mobile in rock.

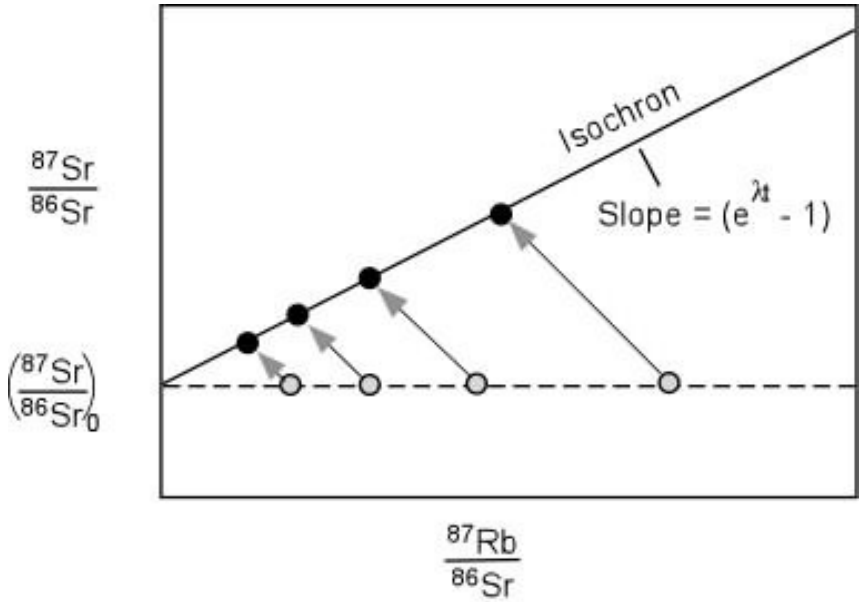
Simplifying the isochron equation when x is small

$$e^x = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \cdots = \sum_{n=0}^{\infty} \frac{x^n}{n!}$$

When x[44] is small $e^x = 1+x$

i.e when λt is small.

so that $(e^{\lambda t} - 1) = \lambda t + 1 - 1 = \lambda t$



Are isochron methods foolproof?

Here is the opinion of one supporter of the technique.

"In the real world, nothing is perfect. There are some isochron results which are obviously incorrect. The significance of isochron plots is a bit counter-intuitive in some cases. And there are known processes which can yield an incorrect isochron age. Does this leave room to discard isochron dating as entirely unreliable? Not really... The large majority of isochron dating results are in accordance with the mainstream age and history of the Earth. If the results were essentially random numbers, that would not be the expected distribution of results. "Counter-intuitive" ages -- for example results which indicate an event earlier than the time of crystallization of the sampled object -- are usually produced by inappropriate selection of samples, and can be avoided in most cases. The processes which could produce incorrect isochron ages require special circumstances, and are not universally applicable across the wide range of rock and mineral types on which isochron dating (by several different radioactive isotopes) has been successfully performed.[45]"

---

[44] x is of course the $^{87}Rb/^{86}Sr$ ratio.
[45] Chris Stassen 1994-1998

David Bailey[46] writes: “Despite this writer’s confidence there are arguments against the reliability of the isochron method. These two examples also underscore the futility in asserting that there is some sort of "conspiracy" or "groupthink" preventing the consideration of young-earth creationist views. Note that each of these three studies have the potential to overthrow the beloved theories of numerous other researchers. If there are fundamental weaknesses in the general class of radiometric dating schemes (or in the particular schemes used in these two studies), why don't the researchers whose results are potentially refuted come forward to publicly identify these weaknesses or flaws?[47] The only believable answer is that there are no fundamental flaws in these schemes -- they have withstood decades of rigorous examination[48] within the scientific community and well deserve their reputation for reliability, although minor adjustments will be made from time to time as experimental techniques are further refined.”

Isochron dating questioned

However, it is this isochron dating method that has recently come ‘under fire’. Writing in the international journal Chemical Geology, Y.F. Zheng of the Geochemical Institute at the University of Gottingen in Germany says:

‘The Rb-Sr isochron method has been one of the most important approaches in isotopic geochronology. But some of the basic assumptions of the method are being questioned at the present time. As first developed the method assumed a system to have:

(1) the same age;
(2) the same initial 87Sr/86Sr ratio; and
(3) acted as a closed system.

Meanwhile, the goodness of fit of experimental data points in a plot of $^{87}Sr/^{86}Sr$ vs. $^{87}Rb/^{86}Sr$ served as a check of these assumptions. However, as the method was gradually applied to a large range of geological problems, it soon became apparent that a linear relationship between $^{87}Sr/^{86}Sr$ and $^{87}Rb/^{86}Sr$ ratios could sometimes yield an anomalous isochron which had no distinct geological meaning. A number of anomalous isochrons have been reported in the literature and various terms

[46] David Harold Bailey (born 1948) is a mathematician and computer scientist. He received his B.S. in mathematics from Brigham Young University in 1972 and his Ph.D. in mathematics from Stanford University in 1976. He worked for 14 years as a computer scientist at NASA Ames Research Center, but since 1998 has been at the Lawrence Berkeley National Laboratory.Bailey is perhaps best known as a co-author (with Peter Borwein and Simon Plouffe) of a 1997 paper that presented a new formula for π (pi). This Bailey–Borwein–Plouffe formula permits one to calculate binary or hexadecimal digits of pi beginning at an arbitrary position, by means of a simple algorithm. The formula was discovered by Simon Plouffe using a computer program written by Bailey. More recently (2001 and 2002), Bailey and Richard Crandall showed that the existence of this and similar formulas has implications for the long-standing question of "normality" – whether and why the digits of certain mathematical constants (including pi) appear "random" in a particular sense.

[47] The answer ito this is simple. They believe in evolution and hate the idea of God. They therefore have an incentive to arrive at conclusions favourable to their positions. If they went against the position of their similarly believing peers they would be ridiculed and maybe excluded from their faculty. It’s not rocket science you know!

[48] By simply rejecting out of hand all opposing arguments.

have been invented, such as apparent isochron[49], mantle isochron and pseudoisochron[50], secondary isochron[51] inherited isochron[52]), source isochron[53], erupted isochron[54], mixing line[55] and mixing isochron[56] Even a suite of samples which do not have identical ages and initial $^{87}Sr/^{86}Sr$ ratios can be fitted to isochrons, such as aerial isochrones.[57]

Mixing[58]

Often an isochron yields an unacceptable slope, indicating an age much too young or much too old to be compatible with the accepted model. Frequently the slope is negative. A common explanation for these cases is "mixing". It has always been recognized that the same straight-line plot as the isochron can be achieved if the original melt were a mixture of two original homogenized pools. If points a and c are the compositions of the two original pools that partially merged to form the melt, any sample from the melt will occupy a place on a straight line between them, such as point b. No sample will be found above a or below c. Such a "mixing line" has no time significance.[59]

There is possibly a test[60] which will indicate whether there has been mixing. If a plot of ^{87}Sr-^{86}Sr Vs 1/Sr (the concentration of strontium) shows a linear relationship, then mixing is indicated. A brief study conducted in 1981 showed a high degree of correlation to this mixing test in the isochrons being published. A subsequent public dialogue between Dalrymple[61] and Arndt[62] & Overn

---

[49] Baadsgaard et al., 1976
[50] Brooks et al., 1976a, b
[51] Field and Ra- Heim, 1980.
[52] Roddick and Compston, 1977
[53] Compston and Chappell, 1979
[54] Betton, 1979; Munksgaard, 1984
[55] Bell and Powell, 1969; Faure, 1977; Christoph, 1986
[56] Zheng, 1986; Qin, 1988
[57] Kohler and Muller-Sohnius, 1980; Haack et al., 1982
[58] The combining of two rock samples that were not formed simultaneously in the same location.
[59] As with other isochron methods, the U-Pb isochron method has been questioned in the open literature, because often an excellent line of best fit between ratios obtained from a set of good cogenetic samples gives a resultant isochron and yields a derived age that has no distinct geological meaning. At Koongarra, Australia, U-Th-Pb isotopic studies of uranium ore, host rocks and soils have produced an array of false isochrons that yield ages that are geologically meaningless. Even a claimed near-concordant U-Pb age of 862Ma on one uraninite grain is identical to a false Pb-Pb isochron age, but neither can be connected to any geological event. Open system behavior of the U-Th-Pb system is clearly the norm, as is the resultant mixing of radiogenic Pb with common or background Pb, even in soils in the surrounding region. Because no geologically meaningful results can be interpreted from the U-Th-Pb data at Koongarra (three uraninite grains even yield a 232Th/208Pb age of 0Ma), serious questions must be asked about the validity of the fundamental/foundational basis of the U-Th-Pb dating method. Andrew A. Snelling, Ph.D. Presented at the Third International Conference on Creationism, Pittsburgh, PA, July 18-23, 1994.
[60] Faure, L. 1977 Principles of Isotope Geology John Wiley & Sons, Inc. New York, New York
[61] G. Brent Dalrymple (born May 9, 1937) is an American geologist, author of The Age of the Earth and Ancient Earth, Ancient Skies, and National Medal of Science winner. He was born in Alhambra, California. After receiving a Ph.D. from University of California, Berkeley, Dalrymple went to work at the U.S. Geological Survey (USGS) in Menlo Park, California. In 1994 he left the USGS to accept a position at Oregon State University, where he served on the faculty until retiring in 2001. He is a member of the National Academy of Sciences.In 2003, Dalrymple was awarded the National Medal of Science. He was presented with the Medal at a ceremony in 2005
[62] Author of many geology books.

concluded that although the mixing test is strongly indicative of mixing, there are circumstances under which mixing would not be detected by such a test, and others wherein the test could give a false indication of mixing. The caution for the geochronologist would be to suspect any isochron, since there is no way to rule out mixing.

The problem: mineral isochrons, those that examine different mineral crystals within a melt, often produce the different parent-nuclide concentrations that the method requires. But a whole-rock isochron should not produce this result. And when it does, then the original melt was not homogeneous at all. **This violates the central assumption of the method**.

The usual explanation given for a false isochron is that the rocks formed from a partially mixed, thus nonhomogeneous, melt. Other explanations include:

The nuclides were fractionated for a protracted period, because the rocks are supposed to have cooled very slowly. (This assumes a fact that some of these isochrons set out to prove.)

Some of the admixed material is older than the rock itself, though usually the isochron plot will be scattered, and the linear regression will not yield a likely-enough result.

The rock is metamorphic, in which case the apparent age is the age of the most recent melt.

Independent equations[63]

In order to be meaningful, all samples must have formed at the same time, and must have the same initial concentration of non-radiogenic isotope. In addition, the system in which the rocks cooled must be ***closed***, so that nothing can change the concentrations of the three nuclides other than radioactive decay. The final assumption is the most problematic: *different samples must have different concentrations of parent nuclide*. Otherwise, all the samples would plot on one point, and no unique solution would be obtainable. If the equations for each plotted point are not independent, the problem (the issue of age) cannot be solved. This would be the case where all samples on the diagram plot on a single point. Although the single point on the diagram is valid, there is no way of finding a slope or intercept. If the melt were initially homogeneous and remained closed, it could be expected still to be homogeneous, and yield that single-point isochron. This should be the general case of the whole-rock isochron.

The need is to find samples with a variety of initial rubidium content but still having initial strontium ratios that are known to be uniform. The assumed initial homogeneous melt cannot be expected to give whole-rock samples with variable rubidium, but the assumed uniform ^{87}Sr-^{86}Sr ratios demand such an initial homogeneous melt.

Isochron Conclusion

The result is that contamination can form good looking isochron data and uniformitarian geologists know it. The real way a "true" isochron is distinguished from a false isochron is by how well it agrees with how old the fossils are considered to be. A technical analysis of "Isochrons" as defended by scientists like Dalrymple against creationist criticism, showing that despite mathematical sophistication, they are unreliable and are calibrated to "known ages" using the geologic column. So then we have come mthe full circle and are employing the same circular easoning used in the Geologic Column.

An Analysis of Claims by Evolutionary Geologists

Evolutionary geologists allege “counter-intuitive” ages—results which indicate an event earlier than the time of crystallization of the sampled object—are usually produced by inappropriate selection of samples.

The evolutionary geologist is, however, well-practised in inappropriate selection of samples—a case of “the pot calling the kettle black.” Evolutionary geologists say isochron interpretation is objective because dishonest practices are immediately recognized as being dishonest and thus discouraged.[64]

---

[63] An independent equation is an equation in a system of simultaneous equations which cannot be derived algebraically from the other equations. The concept typically arises in the context of linear equations. If it is possible to duplicate one of the equations in a system by multiplying each of the other equations by some number (potentially a different number for each equation) and summing the resulting equations, then that equation is dependent on the others. But if this is not possible, then that equation is independent of the others.

[64] Rampant naivety

This ignores the geological frauds of history and the personal motivation to gain collegial approval and research dollars. The next person to attempt to replicate the experiment would uncover the fraud. This ignores the unlikely exact correspondence of different samples in their concentration and geological history.[65]

Outlying data points are regularly reported and almost always plotted on the isochron diagram… but occasionally not included in the computation of the best-fit line. (However this is always made clear in the paper; exclusion of a small percentage of outliers is a reasonably standard statistical practice for improving accuracy of calculations.) John Woodmorappe[66] found that outliers[67] were often discarded as anomalies and not documented at all.[68]

Performing multiple isochron plots in search of a "good" one would be outlandishly expensive. More common in a single plot is the practice of ignoring non-linear points or those implying the "wrong" age. Further tests would likely give the same result as the first, and there would be a very low probability of getting a significantly better plot.

This is an assumption. Why not do further tests with the research award, rather than using funds to pursue publicity to secure more grants? Further, why do dates from multiple heterogeneous pairs give wildly spread dates? The isochron experiment is after all still basically a Parent -Daughter dating method.

Negative results are regularly published but only in the creationist press. What is the ratio of reported negative isochron results to positive results in the mainstream press? Clearly it is none!

In short, the cycle of inflated claims for radiometric dating methods consists of five steps:

1. A new dating method is developed
2. Sweeping claims are made of its reliability
3. Numerous anomalies surface
4. A new layer of rationalizations is invented to explain away discrepancies
5. Return to 1.

---

[65] See the Wikipedia article on scientific fraud – and it is by no ways comprehensive.

[66] John Woodmorappe (born October 1954) is the pen name of Jan Peczkis, an author who has written several articles for the creation science groups Answers in Genesis and the Institute for Creation Research, among others, and books including Noah's Ark: A Feasibility Study and 'The Mythology of Modern Dating Methods. Woodmorappe has received a B.A. and M.A. in Geology and a B.A. in Biology Peczkis taught science to grades four to seven at Budlong Elementary School in Chicago until he was "let go" in April 2006 due to a lack of funding and has since become a substitute teacher.

[67] In statistics, an outlier is an observation that is numerically distant from the rest of the data.

[68] The Mythology of Modern Dating Methods, John Woodmorappe, ICR, 1999. In Woodmorappe's highly technical rebuttal of 494 geology references of questionable credibility, the author exposes 52 generally bogus claims: rarity of discrepant dates(14), self-checking of methods(29), agreement on dates, cross-discipline corroboration, concordance of different methods, convergence of earth's age at 4.5 billion years, special pleadings, data manipulation, no standard reliability criteria/norms, new analytic techniques beget new post-facto rationalizations, premises assumed true, not proven. 47 "myths" are discussed, including 24 isochron dates, 10 using Argon 39/40, and 13 with U-Pb Zircons. One is introduced to an Orwellian world of geological doublespeak {delayed-uplift ages, cooling ages, thermochronologic data, rejuvenated dates, inherited isochrons. An example of applying such geologic logic to everyday life would be: When picking socks out of a laundry bag of mixed socks, only white ones will be found—the rest are discarded as contaminated.

EPILOGUE

Many people implicitly trust scientists – but especially so when those scientists arrive at a conclusion with which they agree. The whole issue reduces to a single question:

"What do you really want to believe?"

Many people regard themselves as logical and rational but when an analysis of their reasoning is done, their position hinges on their emotional standpoint and any previously held world view. Let's be honest. That is the reality.

There is a very stark choice between evolution and creation:

Science	Bible
No purpose to our existence. No hope.	**Purpose is to create a divine family. There is hope.**
Evolution	**Creation**
God leaves things to chance.	**God is in charge – he has the power and intelligence to instantly create beings e.g. people by resurrection**
Natural Selection → Survival of the fittest	**Natural Selection → God likes diversity within narrow parameters. God looks after his creation.**
Billions of years for earth	**Unknown age for earth (disputed)**
500 Ma for Life. 4.5 Ga for the planet	**6ka years for life.**
Uniformitarian → God doesn't intervene	**Catastrophism eg Flood→God intervenes**

So, then there is bias in the world of science. Daniel Sarewitz[69] writing in Nature[70] in May 2012 states:

"Alarming cracks are starting to penetrate deep into the scientific edifice. They threaten the status of science and its value to society. And they cannot be blamed on the usual suspects — inadequate funding, misconduct, political interference, an illiterate public. Their cause is bias, and the threat they pose goes to the heart of research.

Bias is an inescapable element of research, especially in fields such as biomedicine that strive to isolate cause–effect relations in complex systems in which relevant variables and phenomena can never be fully identified or characterized. Yet if biases were random, then multiple studies ought to converge on truth. Evidence is mounting that biases are not random. A Comment in Nature in March

[69] Daniel Sarewitz is co-director of the Consortium for Science, Policy and Outcomes at Arizona State University, and is based in Washington DC.
[70] Volume 485, Issue 7397

reported that researchers at Amgen were able to confirm the results of only six of 53 'landmark studies' in preclinical cancer research[71] *For more than a decade, and with increasing frequency, scientists and journalists have pointed out similar problems.*

Early signs of trouble were appearing by the mid-1990s, when researchers began to document systematic positive bias in clinical trials funded by the pharmaceutical industry. Initially these biases seemed easy to address, and in some ways they offered psychological comfort. The problem, after all, was not with science, but with the poison of the profit motive. It could be countered with strict requirements to disclose conflicts of interest and to report all clinical trials.

Yet closer examination showed that the trouble ran deeper. Science's internal controls on bias were failing, and bias and error were trending in the same direction — towards the pervasive over-selection and over-reporting of false positive results. The problem was most provocatively asserted in a now-famous 2005 paper by John Ioannidis, currently at Stanford University in California: 'Why Most Published Research Findings Are False'[72]*. Evidence of systematic positive bias was turning up in research ranging from basic to clinical, and on subjects ranging from genetic disease markers to testing of traditional Chinese medical practices."*

He adds:

"Like a magnetic field that pulls iron filings into alignment, a powerful cultural belief is aligning multiple sources of scientific bias in the same direction. The belief is that progress in science means the continual production of positive findings. All involved benefit from positive results, and from the appearance of progress. Scientists are rewarded both intellectually and professionally, science administrators are empowered and the public desire for a better world is answered. The lack of incentives to report negative results, replicate experiments or recognize inconsistencies, ambiguities and uncertainties is widely appreciated — but the necessary cultural change is incredibly difficult to achieve."

There are numerous examples of scientific fraud –including many that support evolution: Ernst Haeckl, Piltdown Man, the Peppered moth theory, Java Man, Nebraska man, and the evolution of the horse – just to name a few.

One would have to be incredibly naïve to believe that a person's personal beliefs do not affect their scientific "findings". This must be true in the area of radiometric dating.

People believe what they want to believe. It is a truth concerning all human kind.

Evolutionary scientists scoff at and ridicule creationists and treat them as nincompoops. Whenever they come up with strong arguments against evolution they are written off as biased, prejudiced, and dishonest quacks who are the enemies of rationality.

It is often said that an argument is lost when anyone uses personal insult as their tactic.

---

[71] C. G. Begley & L. M. Ellis Nature 483, 531–533; 2012
[72] J. P. A. Ioannidis PLoS Med. 2, e124; 2005

Problems with Peer-Review: A Brief Summary

Casey Luskin February 10, 2012 12:03 PM | Permalink

We've received some very positive feedback about my piece on problems with the peer-review publication system. Admittedly, it's a slightly long article, so I'd like to provide a short summarized version of the arguments here:

Point 1. Good science does not have to be published in the peer-reviewed literature.
Ground-breaking scientific books, like Darwin's *Origin of the Species* or Newton's *Principia* were not published in peer-reviewed journals. There are many examples of leading journals like *Nature* and *Science* having rejected important research, including research that later won the Nobel prize. Even the U.S. Supreme Court ruled in the 1993 case *Daubert v. Merrell Dow Pharmaceuticals, Inc.* that "Publication (which is but one element of peer review) is not a *sine qua non* of admissibility; it does not necessarily correlate with reliability, and in some instances well-grounded but innovative theories will not have been published." It's a fallacy to claim that a scientific idea is necessarily unreliable if it hasn't appeared in the peer-reviewed literature.

Point 2: The peer-review system faces two common criticisms: (1) that the system wrongly rejects scientifically valid papers, and (2) that the system wrongly accepts scientifically flawed papers.
There are many examples where journals had to retract papers because errors, or even outright fraud, went undetected by the reviewers. Studies have found that peer-review has little effect on improving the quality of articles. Peer-review publication is time-consuming and expensive and often excludes people for no good reason. But the "publish or perish" mindset keeps the system in place.

Point 3: If you believe that scientific peer-reviewers are like perfectly objective robots, then you believe a myth.
All scientists are humans, and none are inerrant. Political concerns, economic factors, lab-rivalry, support for one's friends, and other normal human elements are never completely divorced from the peer-review process. Journals have huge economic interests in preserving the current flawed system, and research scientists gladly play along because peer-reviewed papers are necessary for them to maintain their positions.

Point 4: Scientific dogmatists increasingly play the "peer-review card" to silence scientific dissent.
Despite the deficiencies in the peer-review system, "peer-review" serves as a rhetorical weapon, enlisted for the purpose of silencing dissenting, minority scientific viewpoints. In scientific debates, we often hear sneers like "Does your criticism appear in a peer-reviewed journal?" before it will be taken seriously. It's hypocritical when scientists push their views upon the public through non-peer reviewed venues like the media, but then try to shut down critics for responding in non-peer-reviewed venues.

Point 5: The peer-review system is often biased against non-majority viewpoints.
The peer-review system is largely devoted to maintaining the *status quo*. As a new scientific theory that challenges much conventional wisdom, intelligent design faces political opposition that has nothing to do with the evidence. In one case, pro-ID biochemist Michael Behe submitted an article for publication in a scientific journal but was told it could not be published because "your unorthodox theory would have to displace something that would be extending the current paradigm." Denyse O'Leary puts it this way: "The overwhelming flaw in the traditional peer review system is that it listed so heavily toward consensus that it showed little tolerance for genuinely new findings and interpretations."

Point 6: ID proponents have published a significant body of legitimate peer-reviewed research, but it's important to understand that being recognized in the peer-reviewed literature is not an absolute requirement to demonstrate an idea's scientific merit.
Despite the attempted lockout, ID proponents have published their ideas in peer-reviewed scientific journals. This shows that ID has academic legitimacy whether or not one applies the dubious "peer-review" test of good science.

http://www.the-scientist.com/?articles.view/articleNo/34518/title/Opinion--Scientific-Peer-Review-in-Crisis/

OPINION: SCIENTIFIC PEER REVIEW IN CRISIS

The case of the Danish Cohort

By Dariusz Leszczynski | February 25, 2013

Large studies have to find links between cell phone use and disease. Is peer review to blame? The publication of a scientific study in a peer-reviewed journal is commonly recognized as a kind of “nobilitation” of the study that confirms its worth. The peer-review process was designed to assure the validity and quality of science that seeks publication. This is not always the case. If and when peer review fails, sloppy science gets published.

According to a recent analysis published in Proceedings of the National Academy of Sciences, about 67 percent of 2047 studies retracted from biomedical and life-science journals (as of May 3, 2012) resulted from scientific misconduct. However, the same PNAS study indicated that about 21 percent of the retractions were attributed to a scientific error. This indicates that failures in peer-review led to the publication of studies that shouldn’t have passed muster. This relatively low number of studies published in error (ca. 436) might be the tip of a larger iceberg, caused by the unwillingness of the editors to take an action.

Peer review is clearly an imperfect process, to say the least. Shoddy reviewing or reviewers have allowed subpar science into the literature. We hear about some of these oversights when studies are retracted due to "scientific error." Really, the error in these cases lies with reviewers, who should have caught such mistakes or deceptions in their initial review of the research. But journal editors are also to blame for not sufficiently using their powers to retract scientifically erroneous studies.

Case in point: In May 2011, the International Agency for Research on Cancer (IARC) classified cell phone radiation as a possible human carcinogen based predominantly on epidemiological evidence. In December 2011, the update of the largest recent epidemiological study, the so-called Danish Cohort, failed to find any causal link between brain cancer and cell phone radiation. It was published in the British Medical Journal.

However, as pointed out by a number of scientists, including myself, peer-review of the Danish Cohort study failed to recognize a number of flaws, which invalidate the study's conclusions.

The only information collected pertaining to a person's exposure to cell phone radiation was the length of their cell phone subscription. Hence, two persons using cell phones—one many hours and another only a few minutes per week—were classified and analyzed in the same exposure group if their subscriptions were of equal length. This meant that in the Danish Cohort study highly exposed people and nearly unexposed people were actually mixed up in the same exposure groups.

From the initial size of the cohort of 723,421 cell phone subscribers, more than 420,000 private subscribers were included in the study but more than 200,000 corporate subscribers were excluded. The exclusion of the corporate cell phone users meant that, most probably, the heaviest users were excluded (unless they had also a private subscription). In addition to being excluded from user categories in the study, corporate users were also classified as unexposed. This means that the control group was contaminated. As the BMJ study admitted: "…Because we excluded corporate subscriptions, mobile phone users who do not have a subscription in their own name will have been misclassified as unexposed…"

Another flaw of the study was a 12-year gap between data collected on cell phone subscriptions and information culled from a cancer registry. The study considered people with cell phone subscriptions as of 1995, while cancer registry data from 2007 was used in the follow-up study. That means that any person who started a cell phone subscription after 1995 was classified as unexposed. So the study's authors considered a person who was diagnosed with brain cancer in 2007, but who had started a cell phone plan in 1996 as unexposed. In reality, that person with brain cancer had been exposed to cell phone radiation for 11 years.

It is clear to me that these flaws invalidate the conclusions of the Danish Cohort study. Peer-review failed, and a study that should never have got published due to its unfounded conclusions remains as a valid peer-reviewed article in the British Medical Journal. As long as the flawed study is not withdrawn it will be used by scientists and by decision makers to justify their actions—e.g. a

reference to the Danish Cohort study was recently used as supporting evidence in failing to indicate a causal link between cell phone radiation and brain cancer by the US Government Accountability Office.

How is it possible that the British Medical Journal allowed such a poor quality peer review? Were the peer reviewers incompetent or did they have conflicts of interest? What was the involvement of the BMJ's editors? Why, once alerted to serious design flaws by readers, have BMJ editors not taken any action?

In my opinion the Danish Cohort study should be retracted because no revision or rewriting can rescue it. The study is missing crucial data on exposure to cell phone radiation. Furthermore, an investigation should be launched to determine why such a flawed study was published. Was it peer reviewer and BMJ editor incompetence alone or was a conflict of interest among reviewers involved? (The authors of the study declared no conflicts of interest, but the original cohort was reportedly established with funding from a Danish phone company.) Answering these questions is important because it might help to avoid similar mistakes in the future.

Vasc Health Risk Manag. 2007 February; 3(1): 39–53.

PMCID: PMC1994041

What is the future of peer review? Why is there fraud in science? Is plagiarism out of control? Why do scientists do bad things? Is it all a case of:"All that is necessary for the triumph of evil is that good men do nothing?"

Chris R Triggle1 and David J Triggle2

Peer review is an essential component of the process that is universally applied prior to the acceptance of a manuscript, grant or other scholarly work. Most of us willingly accept the responsibilities that come with being a reviewer but how comfortable are we with the process? Peer review is open to abuse but how should it be policed and can it be improved? A bad peer review process can inadvertently ruin an individual's career, but are there penalties for policing a reviewer who deliberately sabotages a manuscript or grant? Science has received an increasingly tainted name because of recent high profile cases of alleged scientific misconduct. Once considered the results of work stress or a temporary mental health problem, scientific misconduct is increasingly being reported and proved to be a repeat offence. How should scientific misconduct be handled—is it a criminal offence and subject to national or international law? Similarly plagiarism is an ever-increasing concern whether at the level of the student or a university president. Are the existing laws tough enough? These issues, with appropriate examples, are dealt with in this review.